Sun Fire™ 6800/4810/4800/3800 Systems Service Manual

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Preface

This book describes how to remove and install field-replaceable units (FRUs) that are part of the system. For example, how to remove and install boards, cards, assemblies, and modules are covered in this book. This book also presents a functional description of the systems.

Who Should Use This Book

Caution – This book is written for qualified service-trained maintenance providers. If you are not a qualified service-trained maintenance provider and you service the system, your warranty on the system will be void.

How This Book Is Organized

This book contains the following chapters and appendixes:

Chapter 1 describes the safety precautions and tools you will need.

Chapter 2 describes how to power on and power off the system.

Chapter 3 describes how to install and remove the CPU/Memory board, the CPUs, Ecache modules, and DIMMs (Dual Inline Memory Modules).

Chapter 4 describes how to install and remove the PCI I/O assembly and how to install and remove the cards in the I/O assembly.

Chapter 5 describes how to install and remove the CompactPCI I/O assembly and how to install and remove the CompactPCI cards in the I/O assembly.

Chapter 6 describes how to install and remove the System Controller board.

Chapter 7 describes how to install and remove the Repeater board.

Chapter 8 describes how to install and remove the power supplies, the AC input box, the redundant transfer unit, and the redundant transfer switches.

Chapter 9 describes how to install and remove the fan trays.

Chapter 10 describes how to install and remove the centerplane.

Chapter 11 describes how to install and remove the patch panel.

Chapter 12 describes how to install and remove the FrameManager.

Appendix A presents a functional description of the systems: the card cage layout and the layout of various boards, such as the CPU/Memory board and the I/O assembly.

Appendix B describes rules for system configuration and system serial number locations.

Appendix C provides part numbers and illustrations of the field-replaceable units.

Typographic Conventions

TABLE P-1 Typographic Conventions

Typeface	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files.
`AaBbCc123`	What you type, when contrasted with on-screen computer output	`% su` `Password:`
AaBbCc123	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the *User's Guide.* These are called *class* options. You *must* be superuser to do this.
AaBbCc123	Command-line variable; replace with a real name or value	To delete a file, type `rm` *filename.*

Related Documentation

Application	Title	Part Number
Installation	*Sun Fire 6800 System Getting Started*	805-7374
	Sun Fire 4810/4800/3800 Systems Getting Started	805-7369
	Sun Fire 6800 System Installation Guide	805-7375
	Sun Fire 4810/4800/3800 Systems Installation Guide	805-7370
	Sun Fire 4810/4800/3800 Systems Cabinet Mounting Guide	806-6781
Operation	*Sun Fire Cabinet Installation and Reference Guide*	806-2942
	Sun Fire 6800/4810/4800/3800 Systems Overview Manual	805-7362
Software	*Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual*	805-7373
	Sun Fire 6800/4810/4800/3800 Systems Controller Command Reference Manual	805-7372

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Notes, Cautions, and Warnings

Caution – This equipment contains lethal voltage. Accidental contact with centerplane, card cage, and drive areas can result in serious injury or death.

Caution – Improper handling by unqualified personnel can cause serious damage to this equipment. Unqualified personnel who tamper with this equipment may be held liable for any resultant damage to the equipment.

Individuals who remove any outer panels or open covers to access this equipment must observe all safety precautions and ensure compliance with skill level requirements, certification, and all applicable local and national laws.

Procedures contained in this document must be performed by qualified service-trained maintenance providers.

Note – Before you begin, carefully read each of the procedures in this manual. If you have not performed similar operations on comparable equipment, *do not attempt* to perform these procedures.

For system compliance class and conformity information, refer to the system installation guide that came with your system.

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CHAPTER 1

Safety and Tools Requirements

This chapter describes the safety and system precautions you must take when servicing the system. It also lists the tools and equipment you will need.

1.1 Safety Precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all cautions, warnings, and instructions marked on the equipment.
- Never push objects of any kind through openings in the equipment as they may touch dangerous voltage points or short out components that could result in fire or electric shock.
- Refer servicing of equipment to qualified personnel.

To protect both yourself and the equipment, observe the following safety precautions:

TABLE 1-1 Safety Precautions

Item	Problem	Precaution
ESD wrist or foot strap	Electro-Static Discharge (ESD)	Each system except for the Sun Fire 3800 has an ESD socket. Connect the ESD banana connector to your system and wear the wrist strap or foot strap when handling printed circuit boards.
ESD mat	ESD	An approved ESD mat provides protection from static damage when used with a wrist strap or foot strap. The mat also cushions and protects small parts that are attached to printed circuit boards.

1.2 Symbols

TABLE 1-2 Symbols

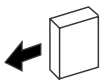
Symbol	Description	Meaning
	CAUTION	Hazardous voltages are present. To reduce the risk of electrical shock and danger, follow the instructions.
	CAUTION	Risk of personal injury. To reduce the risk, follow the instructions.
	CAUTION	Risk of equipment damage. To reduce the risk, follow the instructions.
	CAUTION	CAUTION: Hot surfaces. Avoid contact. Surfaces are hot and may cause personal injury if touched.
	AC	A terminal to which alternating current or voltage may be applied.
	SYSTEM, POWER	System is receiving DC power. When the power LED is lit, the system is operating normally.
	COMPONENT ACTIVATED	Component is activated when the green activated LED on the system component is lit.
	**OK TO REMOVE**	You can safely remove board or component from the system when the OK to remove LED (amber) is lit.

TABLE 1-2 Symbols *(Continued)*

Symbol	Description	Meaning
	PROTECTIVE EARTH	Earth ground.
	CHASSIS	Frame or chassis ground.
	FUSE REPLACEMENT MARKING	For continued protection against risk of fire and electric shock, replace ONLY with fuse of the same type and rating.

1.3 System Precautions

Ensure that the voltage and frequency of the power outlet to be used matches the electrical rating labels on the equipment.

Wear an ESD wrist/foot strap when handling any magnetic storage devices, CPU/Memory boards, or other printed circuit boards.

Use only properly grounded power outlets as described in the installation guides.

Caution – DO NOT make mechanical or electrical modifications to the system or the cabinet. Sun Microsystems™ is not responsible for regulatory compliance of modified cabinets.

Caution – The chassis AC power cord(s) must remain connected to ensure a proper ground.

1.4 Filler Boards and Filler Panels

Filler boards and panels, which are physically inserted into the board or card slot, are used for EMI protection and for air flow.

TABLE 1-3 describes the precautions you must take when you remove boards or assemblies from a system in order to prevent the system from overheating.

TABLE 1-3 Overheating Precautions Using Filler Boards

If you have...	Do the following
Empty PCI card slots	Install PCI filler boards in all empty PCI card slots.
Empty CompactPCI I/O slots	Install CompactPCI I/O filler boards in all unused CompactPCI slots.
CPU/Memory board	Install a filler board in a system to prevent the system from overheating if the system is to be operating without the CPU/Memory board installed. If two CPU/Memory boards must be removed, use a CPU filler panel over one board slot and install a filler board in the second board slot in order to prevent the system from overheating. Do not install two filler panels.
System Controller board	A filler board occupies the empty slot for one of the System Controller boards. If you install a redundant System Controller board, remove the System Controller filler board.
Empty power supply slots	Install power supply filler panels in empty power supply slots within one minute in a powered-on system.

1.5 Tools Required

For the procedures in this document, you will need these tools:

- Screwdriver, Phillips #2
- Screwdriver, Phillips #2 with six-inch shank
- Needlenose pliers
- ESD mat
- ESD grounding wrist strap or foot strap

CHAPTER **2**

Powering Off and On

This chapter describes how to power the system off and on. These systems do not have a physical keyswitch. To power off the system, you must halt the Solaris Operating Environment in each domain and then power off the domain.

2.1 Powering Off the System

Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete step-by-step commands for powering off the domains and the system.

1. **If your Sun Fire 4810/4800/3800 system is not in a Sun Fire cabinet, skip this step. For Sun Fire 6800 system or Sun Fire 4810/4800/3800 systems mounted in a Sun Fire cabinet, turn the keyswitch on the FrameManager to the off position (**FIGURE 2-1**).**

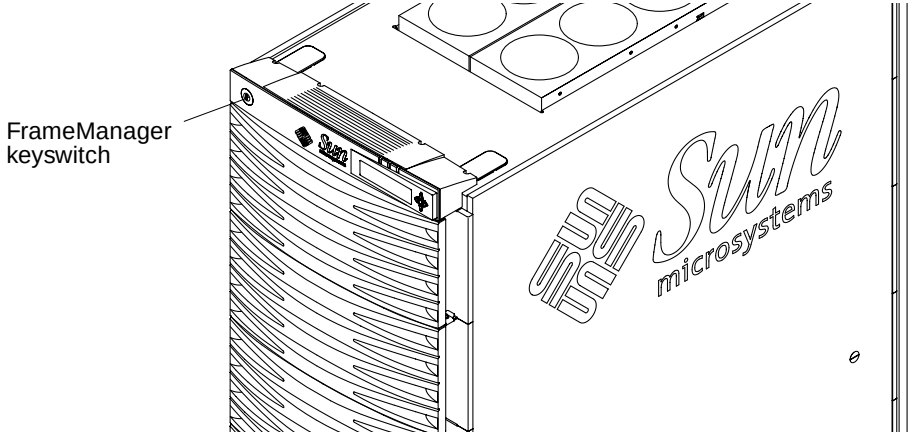


FIGURE 2-1 Sun Fire System Cabinet Showing FrameManager—Top View

2. **Turn off the AC input box(es) (**FIGURE 2-2**,** FIGURE 2-3**,** FIGURE 2-4**).**

   The Sun Fire 3800 system does not have an AC input box.

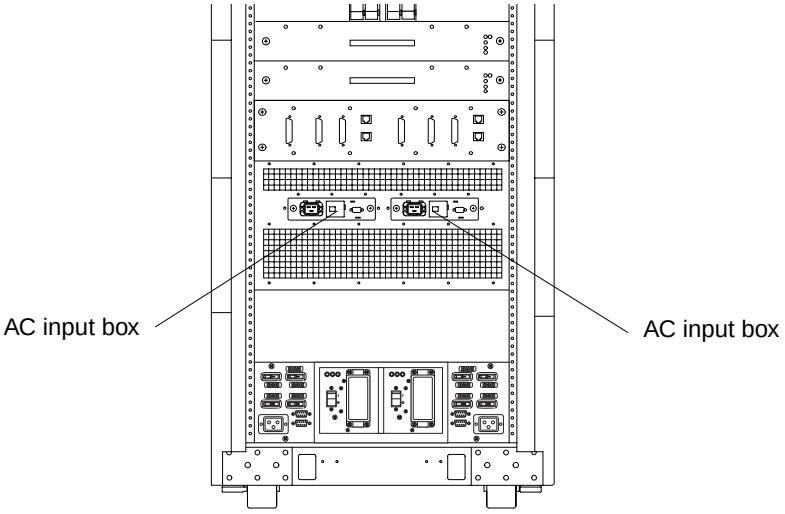


FIGURE 2-2 AC Input Boxes—Sun Fire 6800 System—Rear View

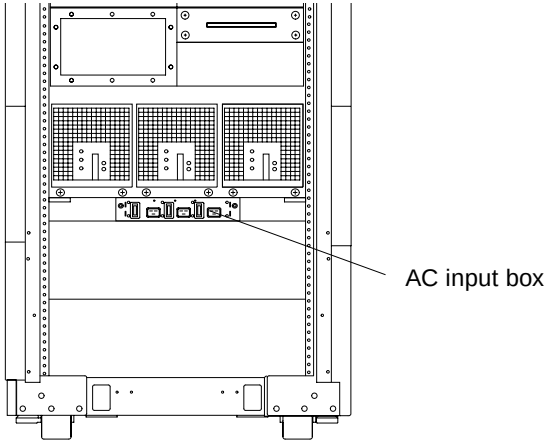


FIGURE 2-3 AC Input Box—Sun Fire 4810 System—Front View

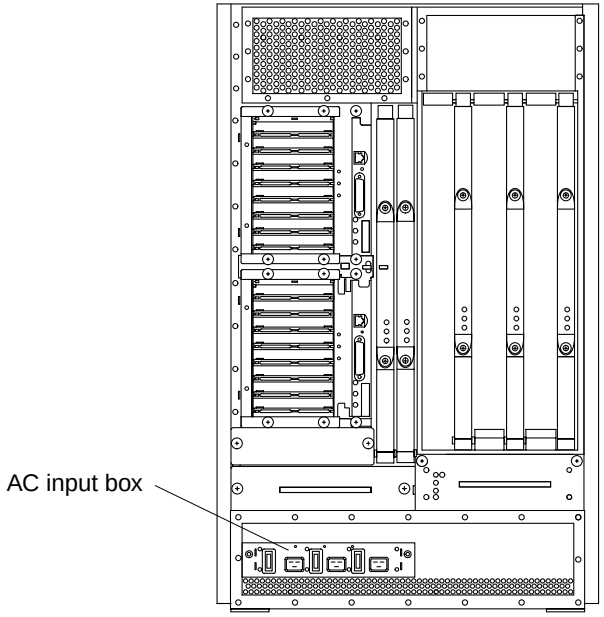


FIGURE 2-4 AC Input Box—Sun Fire 4800 System—Rear View

3. **If you have a Sun Fire 3800 system, turn off the power switch located on each power supply (**FIGURE 2-5**).**

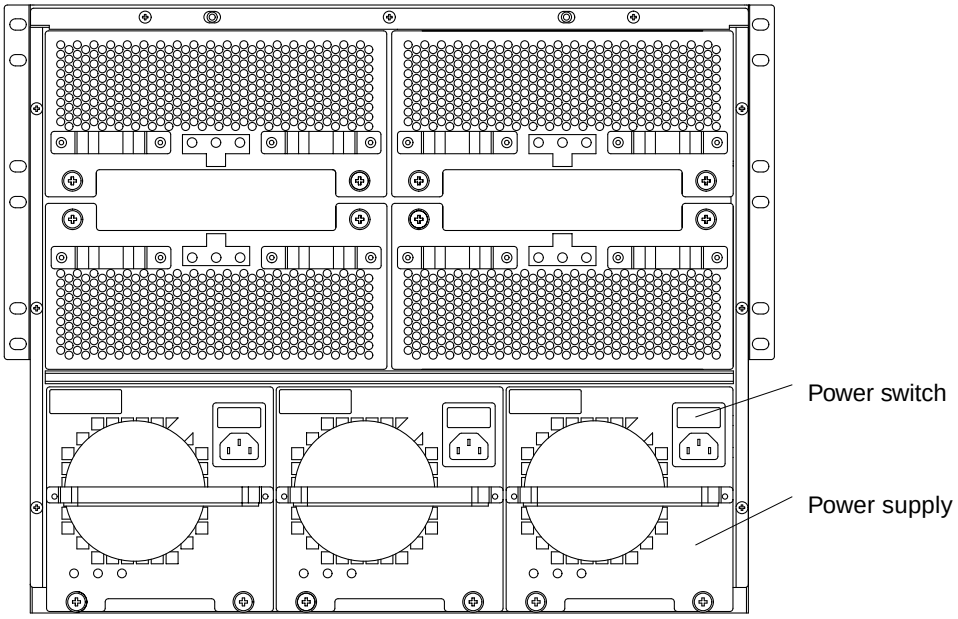


FIGURE 2-5 Sun Fire 3800 System Power Supplies—Rear View

4. **Turn off the redundant transfer switches (RTS) (**FIGURE 2-6 **and** FIGURE 2-7**).**

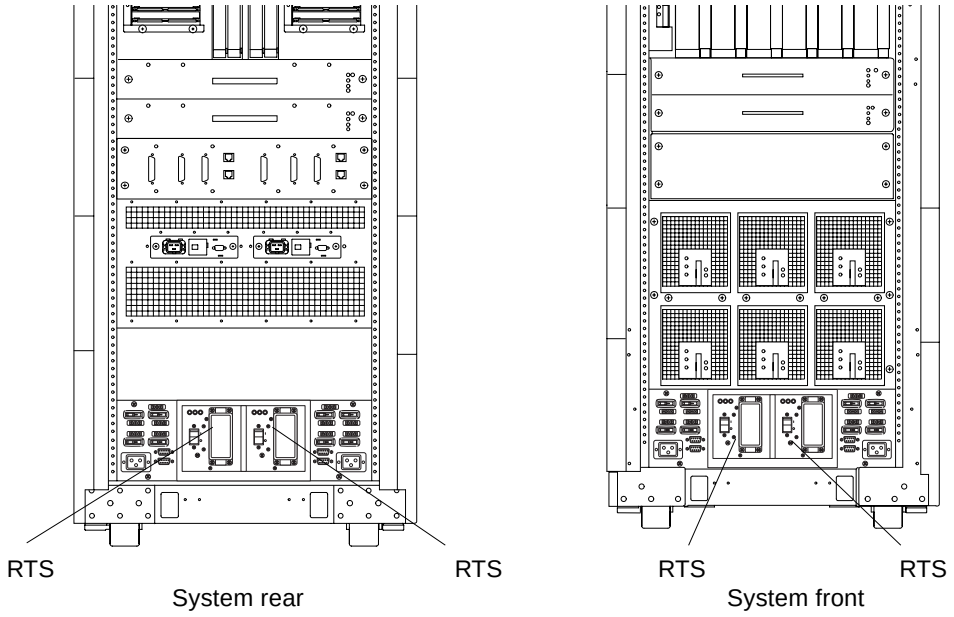


FIGURE 2-6 Redundant Transfer Switches (RTS)—Sun Fire 6800 System

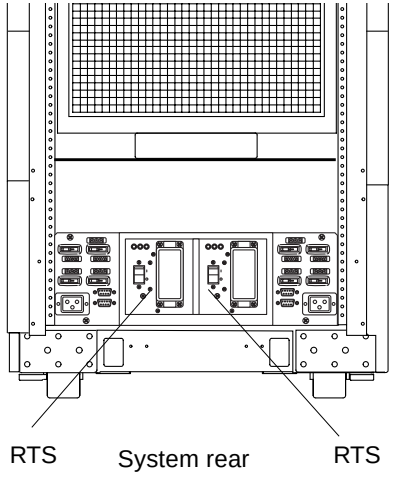


FIGURE 2-7 Redundant Transfer Switches (RTS)—Sun Fire 4810 System

2.2 Powering On the System

1. **If your Sun Fire 4810/4800/3800 system is not in a Sun Fire cabinet, skip to Step 3. For the Sun Fire 6800 system or Sun Fire cabinet, turn on the RTS modules (**FIGURE 8-16 **on page 8-18 and** FIGURE 8-17 **on page 8-18).**

   It will take 30 seconds to one minute for the RTS modules to power on.

2. **Check that all of the circuit breakers on each side of the RTU are on.**

3. **Turn on the AC input box(es).**

   See FIGURE 8-10 on page 8-13, FIGURE 8-11 on page 8-13, or FIGURE 8-12 on page 8-14.

   The Sun Fire 3800 system does not have an AC input box.

4. **If your Sun Fire 4810/4800/3800 system is not in a Sun Fire cabinet, skip this step. For Sun Fire 6800 system or Sun Fire 4810/4800/3800 systems mounted in a Sun Fire cabinet, turn the keyswitch on the FrameManager to the on position (**FIGURE 2-1 **on page 2-1).**

5. **Power on the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the system.

CHAPTER 3

CPU / Memory Boards and Components

To protect both yourself and the equipment, make sure you follow the precautions in Chapter 1.

This chapter contains the following sections:

- Section 3.1 “Handling Boards and Assemblies” on page 3-1
- Section 3.2 “Filler Panels and Filler Boards” on page 3-3
  - Section 3.2.1 “CPU / Memory Boards” on page 3-3
  - Section 3.2.2 “Replacing CPU / Memory Boards” on page 3-7
  - Section 3.2.3 “Replacing DIMMs” on page 3-11

For your protection, also observe the following safety precautions when setting up your equipment:

- Follow all cautions, warnings, and instructions marked on the equipment.
- Always use proper ESD equipment and procedures when handling boards and components.
- Never push objects of any kind through openings in the equipment as they may touch dangerous voltage points or short out components that can result in fire or electric shock.
- Refer servicing of equipment to qualified personnel.

3.1 Handling Boards and Assemblies

Caution – The chassis AC power cord(s) must remain connected to ensure a proper ground.

Caution – The system is sensitive to static electricity. To prevent damage to the board, connect an antistatic wrist strap between you and the system.

Caution – The CPU/Memory boards have surface-mount components that can be broken if you flex the boards.

To minimize the amount of board flexing, observe the following precautions:

- Hold the board only by the handle and by the edges near the middle of the board, where the board stiffener is located. Do not hold the board *only* at the ends.
- When removing the board from an antistatic bag, keep the board vertical until you lay it on the ESD mat.
- Do not place the board on a hard surface. Use a cushioned antistatic mat. The board connectors and components have very thin pins that bend easily.
- Be careful of small component parts located on both sides of the board.
- Do not use an oscilloscope probe on the components. The soldered pins are easily damaged or shorted by the probe point.
- Transport the board in an antistatic bag.

Caution – The CPU/Memory board is heavy and weighs approximately 17 to 20 pounds (7.7 to 9.0 kg). Take care when removing the board from the system.

Caution – The heatsinks on the board can be damaged by incorrect handling. Do not touch the heatsinks while replacing or removing the board. If a heatsink is loose or broken, obtain a replacement board.

Caution – The heatsinks on the board can be damaged by improper packaging. When storing or shipping the board, ensure that the heatsinks have sufficient protection.

Note – The CPU/Memory board can be inserted into a powered-on system. The board will not be recognized by the system until the domain has been re-initialized and rebooted. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for initializing a domain.

3.2 Filler Panels and Filler Boards

See Section 1.4 “Filler Boards and Filler Panels” on page 1-4 for procedures you must follow when removing CPU/Memory boards from a system in order to prevent the system from overheating.

3.2.1 CPU/Memory Boards

All systems support the following:

- Up to four CPU processors with each CPU processor supporting two DIMM (dual inline memory module) banks of four DIMMs per bank
- Up to eight Ecache modules (two per CPU processor)
- Up to 8 Gbytes of memory per CPU processor
- Up to 32 DIMMs

On the CPU/Memory board, the memory controller is integrated in the CPU processor. The CPU/Memory board has a metal cover that covers the CPU processors and Ecache.

There are three LEDs on the CPU/Memory board. TABLE 3-1 notes the LED functions.

TABLE 3-1 CPU/Memory Board LED Functions

LED	On	Off
Activated LED (green)	Device is activated.	Device is deactivated
Fault LED (amber)	Internal fault	No internal fault
OK to remove (amber)	Assembly can be removed	Assembly cannot be removed

FIGURE 3-1 illustrates the CPU/Memory board LEDs and major components.

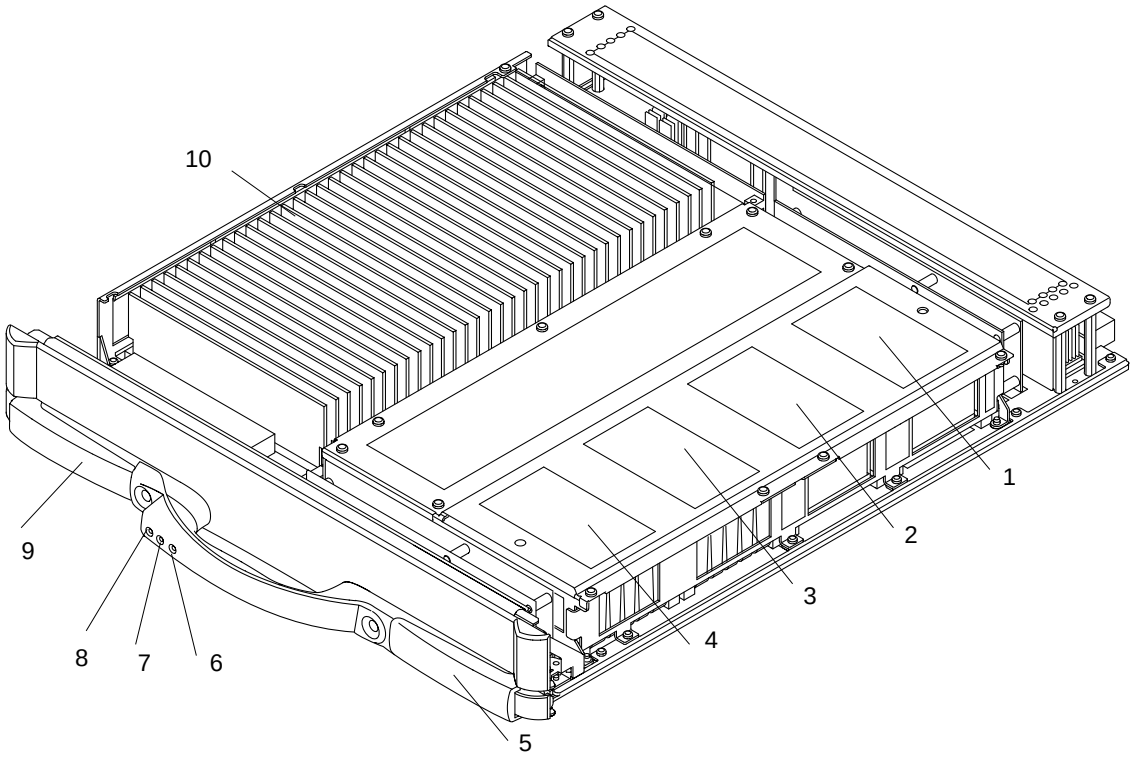


FIGURE 3-1 CPU / Memory Board With the Cover Installed

Key	Description
1	CPU processor 1 land area
2	CPU processor 0 land area
3	CPU processor 3 land area
4	CPU processor 2 land area
5	Ejector lever
6	Activated LED (green)
7	Fault LED (amber)
8	LED (amber) (for future use)
9	Ejector lever
10	DIMMs

TABLE 3-2 shows the CPU/Memory board slot locations.

TABLE 3-2 CPU/Memory Board Slot Locations

System	Number of Slots	Slot Numbers	Location
Sun Fire 6800	6	SB0, SB1, SB2, SB3, SB4, SB5	Front
Sun Fire 4810	3	SB0, SB2, SB4	Front
Sun Fire 4800	3	SB0, SB2, SB4	Rear
Sun Fire 3800	2	SB0, SB2	Front

FIGURE 3-2, FIGURE 3-3, FIGURE 3-4, and FIGURE 3-5 illustrate the slot numbers for the CPU/Memory boards for all systems.

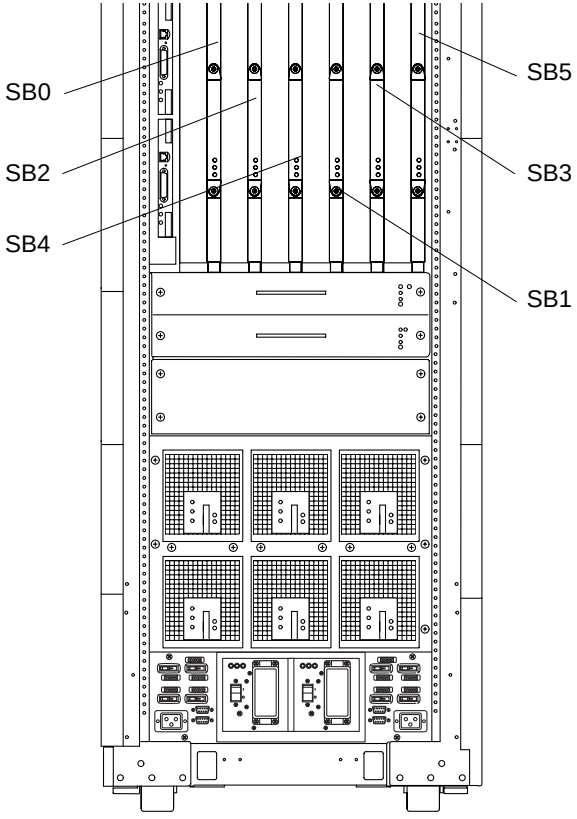


FIGURE 3-2 CPU/Memory Board Slot Assignments—Sun Fire 6800 System—Front View

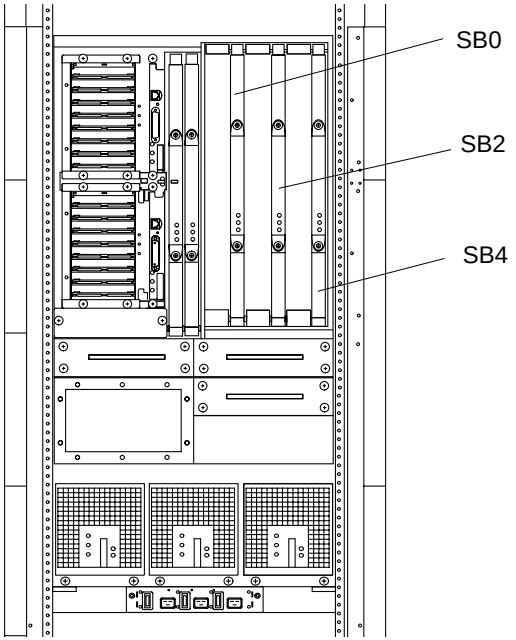


FIGURE 3-3 CPU / Memory Board Slot Assignments—Sun Fire 4810 System—Front View

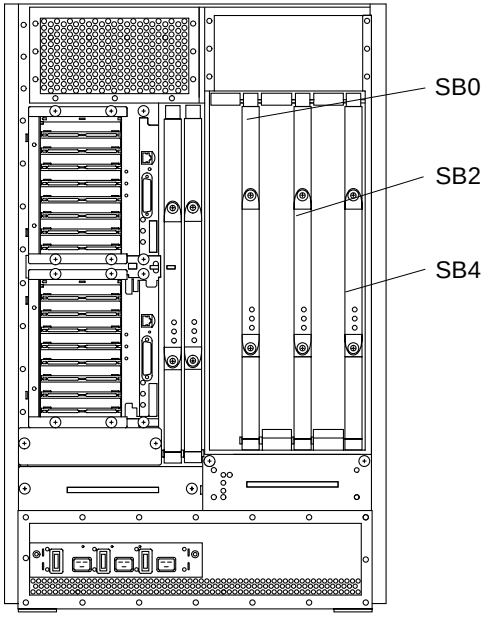


FIGURE 3-4 CPU / Memory Board Slot Assignments—Sun Fire 4800 System—Rear View

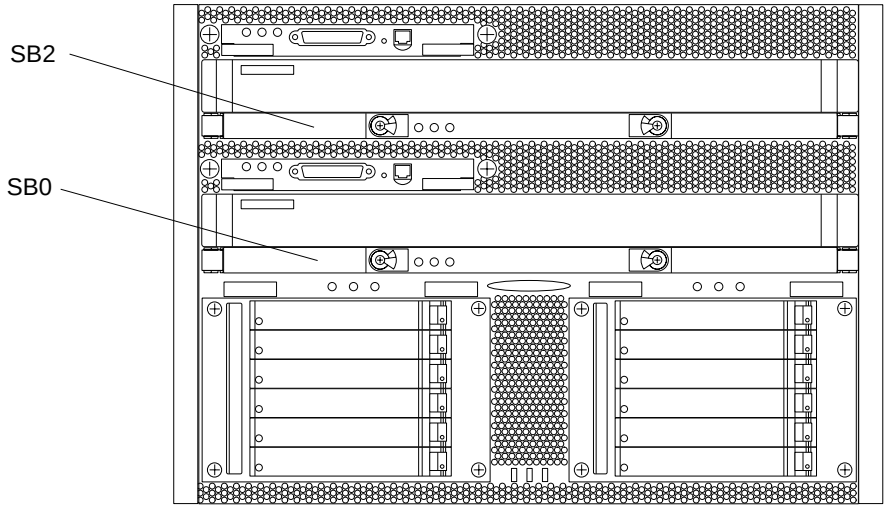


FIGURE 3-5 CPU/Memory Board Slot Assignments—Sun Fire 3800 System—Front View

3.2.2 Replacing CPU/Memory Boards

Note – Before you begin this procedure, make sure that all fan trays are installed in the system and are operating normally. The fan trays cool the CPU/Memory boards. For more information on fan tray cooling, see Chapter 9.

Note – The CPU/Memory board field-replacable unit (FRU) is for maintenance use only. FRUs must not be used to upgrade CPU performance in systems. Usage as such can violate United States export regulations.

3.2.2.1 Removing a CPU/Memory Board

Caution – The CPU/Memory board is heavy and weighs approximately 17 to 20 pounds (7.7 to 9.0 kg). Take care when removing the board from the system.

---

1. **Prepare the system to remove the CPU/Memory board.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the board.

2. **Be sure that you have a filler board, filler panel, or replacement board ready.**

3. **Attach a wrist strap or foot strap. Connect the ESD strap to the system.**

4. **Place a grounded ESD mat close to the system.**

5. **Unlock the ejector levers on the CPU/Memory board with a Phillips #2 screwdriver (**FIGURE 3-6**).**

   The ejectors will pop out slightly.

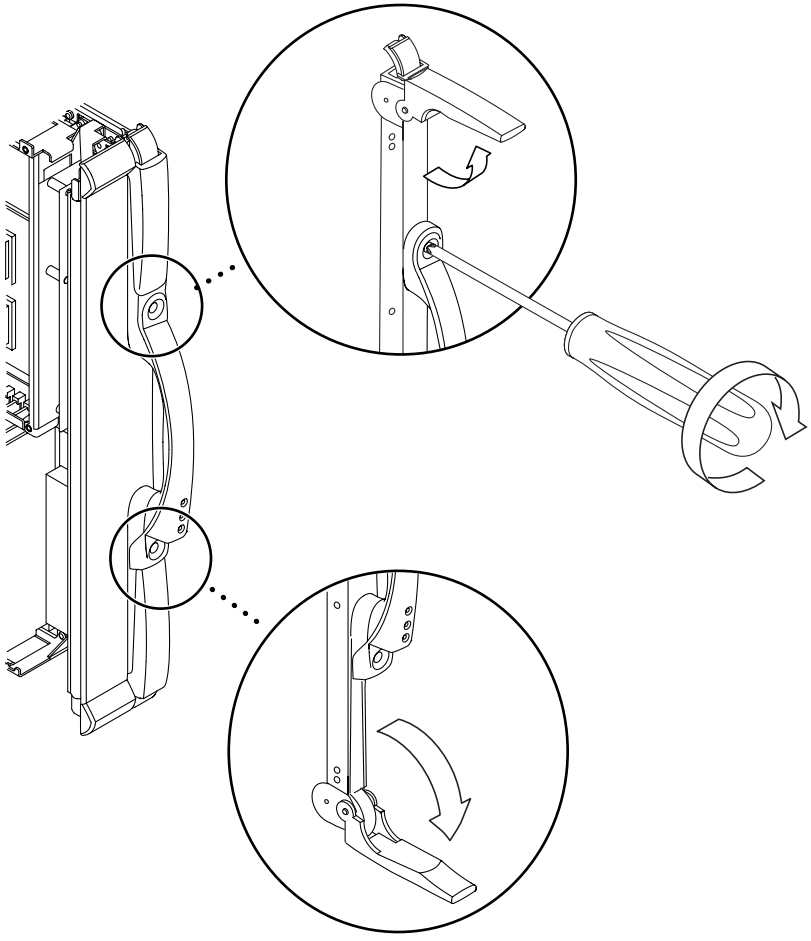


FIGURE 3-6 Unlocking the Ejector Levers

6. **Manually rotate the ejector levers until they are 90 degrees straight out from the board (**FIGURE 3-6**).**

   This action unseats the board from the connector.

7. **Remove the CPU/Memory board.**

   - For the Sun Fire 6800/4810/4800 systems, remove the board from the card cage by holding the handle and grasping the bottom rail with your other hand. Slide the board along the track until the board is out of the card cage, being careful not to touch neighboring boards (FIGURE 3-7).

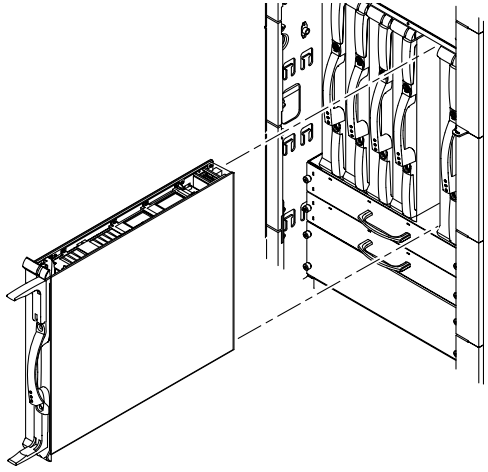


FIGURE 3-7 Removing or Replacing a CPU/Memory Board—Sun Fire 6800 System

   - For the Sun Fire 3800 system, remove the board by holding the handle, supporting the bottom with your other hand and sliding the board out of the slot (FIGURE 3-8).

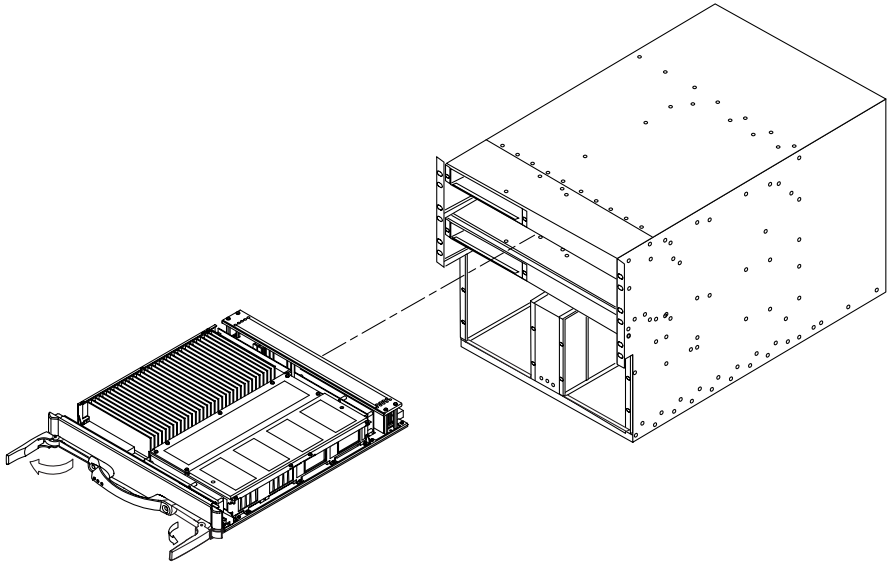


FIGURE 3-8 Removing and Replacing a CPU / Memory Board—Sun Fire 3800 System

8. **Place the board on a grounded ESD mat.**

Caution – To prevent overheating when the system is powered back on, install a filler board or filler panel in the empty slot if no replacement board is going to be installed.

See Section 1.4 “Filler Boards and Filler Panels” on page 1-4.

3.2.2.2 Installing a CPU / Memory Board

Note – The CPU / Memory board can be inserted into a powered-on system. The board will not be recognized by the system until the domain has been re-initialized and rebooted. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for initializing a domain.

1. **Attach a wrist strap or foot strap. Connect the ESD strap to the system. Place a grounded ESD mat close to the system.**
2. **Remove the CPU/Memory board filler board or filler panel.**

3. **Make sure that the ejector levers of the CPU/Memory board are in the open position. They should be 90 degrees straight out from the board (**FIGURE 3-6**).**

Caution – DO NOT FORCE any board into a slot; it can cause damage to the board and system. The board should insert and seat smoothly. If it binds, remove the board and inspect the card cage slot for any obvious obstructions. Also inspect both the board and the centerplane for bent pins or other damage.

4. **Gently insert the CPU/Memory board into the grooves into the proper slot (see** TABLE 3-2 **for slot locations) until the board stops (**FIGURE 3-7**).**
   - For the Sun Fire 6800/4810/4800 systems, the top of the board is noted by the thin rail. The bottom of the board has a thicker rail. The board LEDs should be at the bottom of the handle when the board is inserted properly into the card cage for the Sun Fire 6800/4810/4800 systems.
   - For the Sun Fire 3800 system, if you are inserting the board into slot SB0, put the board on the board guides in the proper slot opening. Only slot SB0 has the small shelves.
5. **Simultaneously rotate both ejectors until they are in the closed position (flush with the board).**

   When the board is properly installed, the ejectors will lock automatically.
6. **Power on the board.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the board.
7. **Initialize the domain.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for initializing a domain.

3.2.3 Replacing DIMMs

The CPU/Memory board has 32 DIMM sockets, which are divided into eight banks of four DIMMs per bank. Each CPU processor has two corresponding DIMM banks. It is possible that a CPU processor does not have any DIMMs installed in its corresponding DIMM bank. However, a populated DIMM bank must have a corresponding CPU processor installed.

Three types of DIMMs can be used in the DIMM banks:

- 128 Mbytes
- 512 Mbytes
- 1 Gbyte

FIGURE 3-9 illustrates the DIMM numbers for the eight DIMM banks.

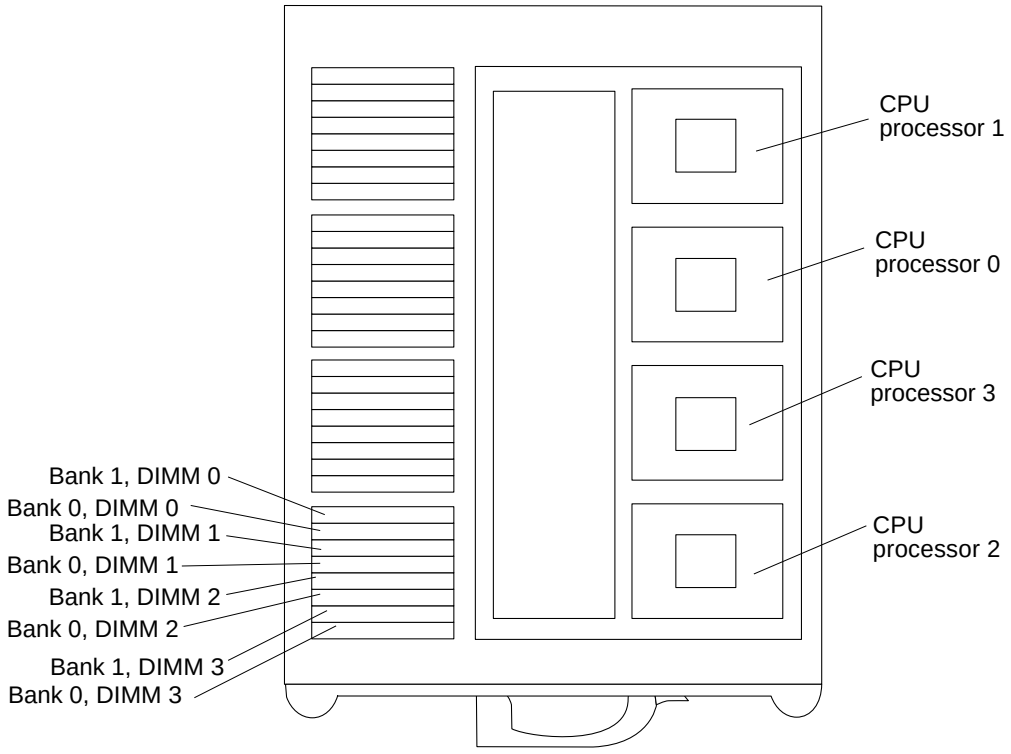


FIGURE 3-9 DIMM Slot Numbers

The DIMM number and bank number are repeated in the same order as CPU processor 2 for CPU processor 3, CPU processor 0, and CPU processor 1. DIMM number 3, bank 0 is the first DIMM, and DIMM number 3, bank 1 is the second DIMM in each DIMM bank. The CPU processor number is noted on the metal cover.

3.2.3.1 DIMM Bank Configuration Guidelines

Follow these DIMM configuration guidelines:

- Each DIMM bank must be fully populated with the same capacity DIMM.
- Install the larger capacity DIMMs into banks before installing the smaller capacity DIMMs into banks.
- The minimum number of DIMMs you can install per CPU processor is four DIMMs or one bank.

- If the number of CPU processors on each CPU/Memory board are the same, place DIMM banks on CPU/Memory boards that have fewer populated DIMM banks before placing DIMMs on CPU/Memory boards that already have more populated DIMM banks.
- If some CPU/Memory boards have more CPU processors than others, place DIMMs in DIMM banks on the board with the most CPU processors. There will be CPU processors without corresponding DIMMs on other boards.

3.2.3.2 Removing DIMMs

Caution – The system is sensitive to static electricity. Make sure you are wearing a grounded wrist strap when handling system components. Always place components on a grounded ESD mat close to the system.

1. **Remove the applicable CPU/Memory board.**

   See Section 3.2.2 “Replacing CPU/Memory Boards” on page 3-7.”

2. **Place the CPU/Memory board on the ESD mat on a work surface.**
3. **Locate the slot for the DIMM you need to replace.**
4. **Eject the faulty DIMM by pressing down on the ejection levers on both sides of the DIMM connector (**FIGURE 3-10**).**

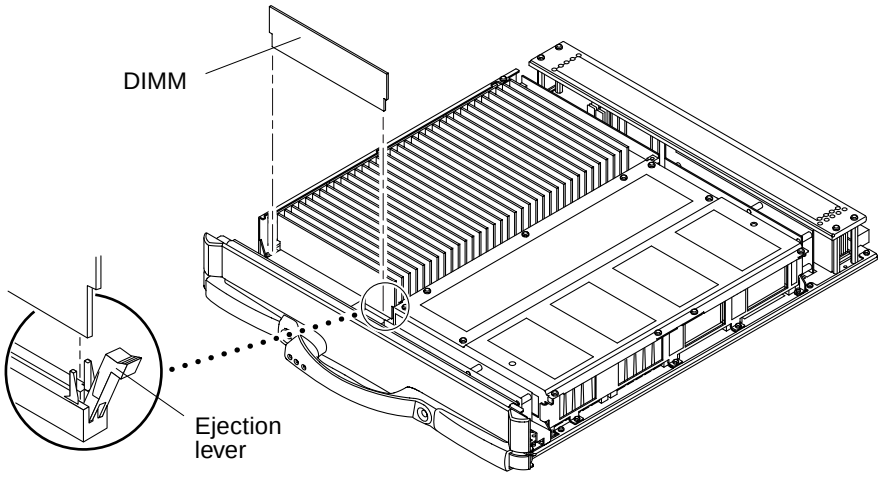


FIGURE 3-10 Removing a DIMM

5. **Holding the DIMM by its edges, remove it from the slot and place it on an antistatic surface.**

3.2.3.3 Installing DIMMs

Install one bank completely on each board before installing the remaining banks on any board.

Note – All banks must have the same size DIMMs. However, DIMMs from different manufacturers are interchangeable in a single bank if the DIMMs all have the same capacity and speed. Sort the DIMMs into banks using the same size DIMMs.

Caution – The system and DIMMs are sensitive to static electricity. To prevent damage to the DIMMs, make sure you are wearing a grounded wrist strap when handling them. Always place components on a grounded ESD mat close to the system.

---

1. **Remove the applicable CPU/Memory board.**

   See Section 3.2.2 “Replacing CPU/Memory Boards” on page 3-7.”

2. **Place the CPU/Memory board on an ESD mat on a work surface.**

3. **Carefully remove the new DIMM from its protective packaging and place it on an antistatic surface.**

   The bag that the DIMM is packed in makes a good antistatic surface.

4. **Press down on the ejector levers at both ends of the DIMM connector slot that will receive the new DIMM.**

   The connector slot will not accept the DIMM unless the levers are in the insert (open) position.

5. **Align the short-side key on the DIMM and the long-side key on the DIMM with the short side and long side of the DIMM connector.**

Note – If you are installing four DIMMs, insert the DIMMs into the same bank.

---

6. **Place your thumbs on the top edge of the DIMM, and push the DIMM firmly into its connector (**FIGURE 3-11**).**

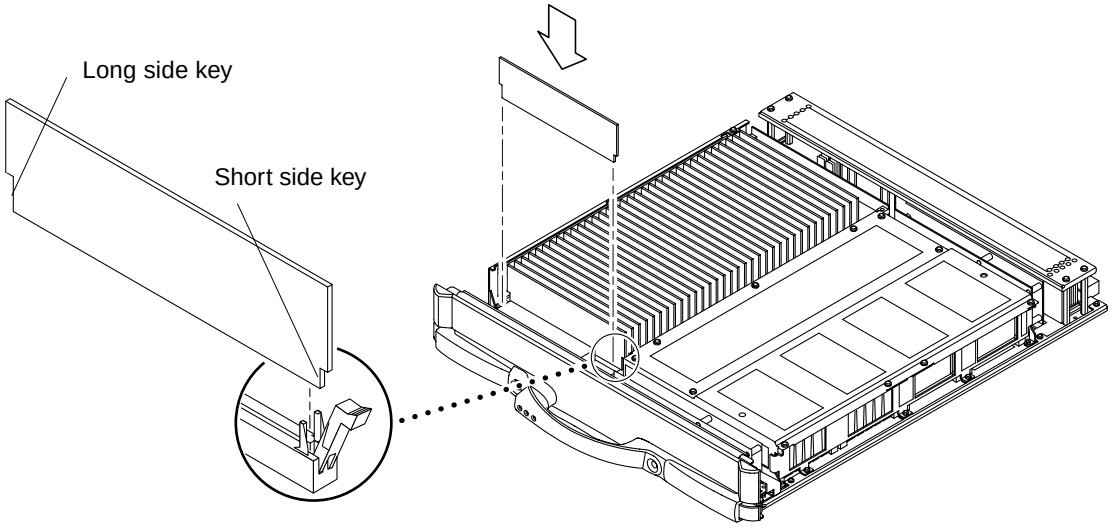


FIGURE 3-11 Installing a DIMM

7. **Press down firmly on the entire edge of the DIMM.**

   When installed correctly, the ejector levers will be in the upright position.

8. **Continue installing DIMMs in the same manner.**

9. **Reinstall the CPU/Memory board and detach the wrist strap.**

   See Section 3.2.2.2 “Installing a CPU/Memory Board” on page 3-10.

CHAPTER 4

PCI I/O Assemblies and Components

The PCI I/O assembly is supported in the Sun Fire 6800/4810/4800 systems. The Sun Fire 3800 system supports only the CompactPCI I/O assembly. See Section 5.3 “CompactPCI I/O Assembly” on page 5-3. This chapter provides an overview of the PCI I/O assembly, including how to remove and install the PCI I/O assembly.

This chapter contains the following sections:

- Section 4.1 “Handling Boards and Assemblies” on page 4-1
- Section 4.2 “Filler Boards and Filler Panels” on page 4-2
  - Section 4.3.3 “Replacing PCI I/O Assemblies” on page 4-7
  - Section 4.3.4 “Replacing PCI Cards” on page 4-9

To protect both yourself and the equipment, make sure you follow the precautions in Chapter 1. Also observe the following safety precautions when setting up your equipment:

- Follow all cautions, warnings, and instructions marked on the equipment.
- Never push objects of any kind through openings in the equipment, as they may touch dangerous voltage points or short out components that can result in fire or electric shock.
- Refer servicing of equipment to qualified personnel.

4.1 Handling Boards and Assemblies

Caution – The chassis AC power cord must remain connected to ensure a proper ground.

Caution – The system is sensitive to static electricity. To prevent damage to the assembly, connect an antistatic wrist strap between you and the system.

Caution – The PCI I/O assemblies, their modules, and cards have surface-mount components that can be broken by flexing the assemblies.

To minimize the amount of board flexing, observe the following precautions:

- Hold the board only by the edges near the middle of the board, where the board stiffener is located. Do not hold the board *only* at the ends.
- When removing the board from an antistatic bag, keep the board vertical until you lay it on the ESD antistatic mat.
- Do not place the board on a hard surface. Use a cushioned antistatic mat. The board connectors and components have very thin pins that bend easily.
- Be careful of small parts located on the component side of the board.
- Do not use an oscilloscope probe on the components. The soldered pins are easily damaged or shorted by the probe point.
- Transport the board in an antistatic bag.

Caution – The heat sinks on the board can be damaged by incorrect handling. Do not touch the heatsinks while replacing or removing the board. Hold the board only by the edges. If a heatsink is loose or broken, obtain a replacement board.

Caution – The heatsinks on the board can be damaged by improper packaging. When storing or shipping the board, ensure that the heatsinks have sufficient protection.

Note – The PCI I/O assembly can be inserted into a powered-on system. The assembly will not be recognized by the system until the domain has been re-initialized and rebooted. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for initializing a domain.

4.2 Filler Boards and Filler Panels

To prevent the system from overheating, see Section 1.4 “Filler Boards and Filler Panels” on page 1-4 for procedures you must follow when removing the I/O assembly from a powered-on system.

Caution – You must install a filler panel which covers only the front of the assembly slot, if the system is to be powered up without the I/O assembly installed. Make sure ALL slots in the I/O assemblies are filled—by cards OR filler boards.

4.3 PCI I/O Assemblies

TABLE 4-1 Description of the PCI I/O Assembly

I/O Assembly	Description
PCI I/O Assembly	Eight PCI slots. Six slots for full-length PCI I/O cards, and two short slots for short PCI I/O cards. Short PCI cards can be installed in any of the six full-length slots as well. Peak I/O throughput for the full-length PCI I/O slots (0, 1, 2, 4, 5, and 6) is 33 MHz, 64-bit, and 5 V I/O. Peak I/O throughput for the short PCI I/O slots (3 and 7) is 66/33 MHz, 64-bit, and 3.3 V I/O. Peak I/O is affected by operating frequency. Total peak I/O throughput per PCI board is 965 Mbytes/second.

4.3.1 PCI I/O Assembly Location Requirements

TABLE 4-2 Location of the I/O Assemblies

System	Slot Numbers	Location
Sun Fire 6800	IB6, IB7, IB8, IB9	Rear
Sun Fire 4810	IB6, IB8	Front
Sun Fire 4800	IB6, IB8	Rear

FIGURE 4-1, FIGURE 4-2, and FIGURE 4-3 illustrate the locations of the I/O assemblies for all systems.

4.3.1.1 Locations Requirements for the Sun Fire 6800 System

FIGURE 4-1 illustrates the I/O assembly locations in the Sun Fire 6800 system.

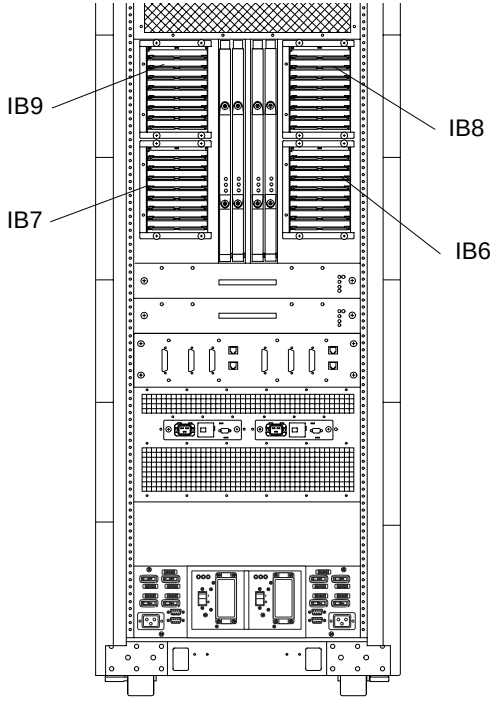


FIGURE 4-1 I/O Assemblies for the Sun Fire 6800 System—Rear View

When you install PCI I/O assemblies into the Sun Fire 6800 system, you can install them in either the top or bottom I/O locations.

Populate the PCI I/O assemblies from right to left. That is, populate I/O locations IB6 and IB8 before you populate the left I/O locations, IB7 and IB9.

4.3.1.2 Locations Requirements for the Sun Fire 4810 System

FIGURE 4-2 illustrates the I/O assembly locations in the Sun Fire 4810 system.

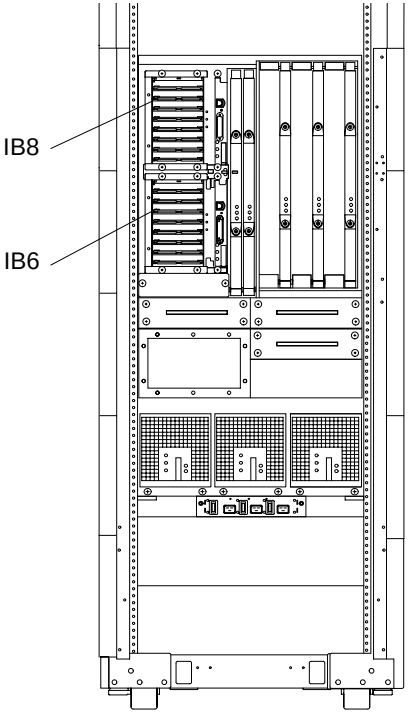


FIGURE 4-2 I/O Assemblies for the Sun Fire 4810 System—Front View

4.3.1.3 Locations Requirements for the Sun Fire 4800 System

FIGURE 4-3 illustrates the I/O assembly locations in the Sun Fire 4800 system.

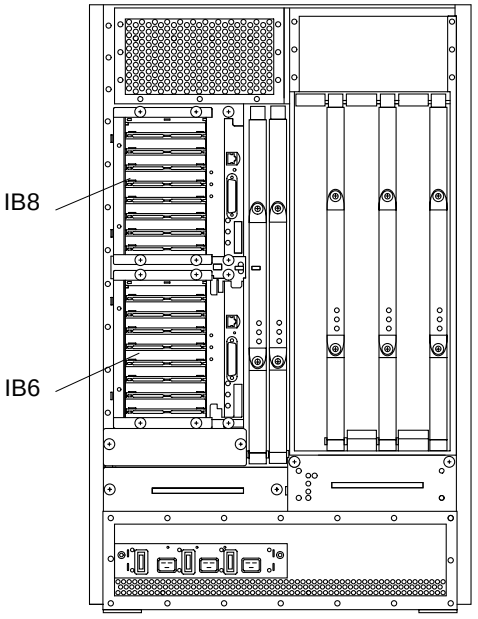


FIGURE 4-3 I/O Assemblies for the Sun Fire 4800 System—Rear View

4.3.2 I/O Assembly LEDs

There are three I/O assembly status LEDs on the PCI I/O assembly (TABLE 4-3).

TABLE 4-3 I/O Assembly Status LED Functions

LED	On	Off
Activated LED (green)	Device is activated	Device is deactivated
Fault LED (amber)	Internal fault	No internal fault
OK to remove (amber)	Assembly can be removed	Assembly cannot be removed

4.3.3 Replacing PCI I/O Assemblies

4.3.3.1 Removing a PCI I/O Assembly

1. **Prepare the system for removal of the PCI I/O assembly.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the assembly.

2. **Attach a wrist strap or foot strap. Connect the ESD strap to the system.**

3. **Place a grounded ESD mat close to the system.**

Caution – The system is sensitive to static electricity.

4. **Loosen the four captive Phillips screws (**FIGURE 4-4**).**

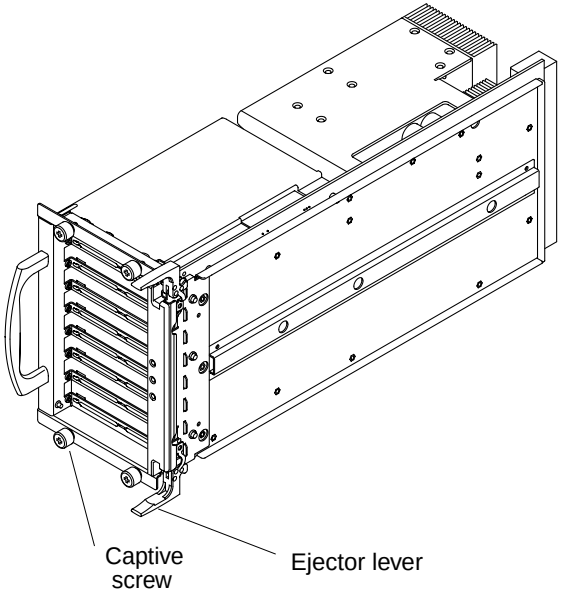


FIGURE 4-4 PCI I/O Assembly

5. **Simultaneously pull the two ejector levers outward to unseat the I/O assembly.**
   This action releases the board from the connectors.
6. **Slide the I/O assembly out of the I/O assembly opening (**FIGURE 4-5**).**

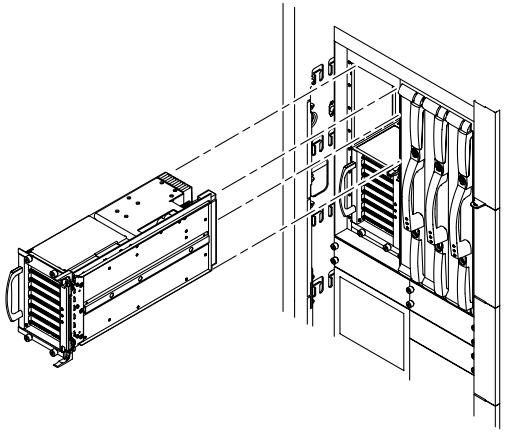


FIGURE 4-5 Removing or Inserting an I/O Assembly—Sun Fire 4810 System

7. **Place the I/O assembly on an ESD mat that is on a work surface.**

4.3.3.2 Installing a PCI I/O Assembly

Note – The PCI I/O assembly can be inserted into a powered-on system. The assembly will not be recognized by the system until the domain has been re-initialized and rebooted. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for initializing a domain.

---

1. **Attach a wrist strap or foot strap. Connect the ESD strap to the system. Place a grounded ESD mat close to the system.**
2. **Line up the I/O assembly with the I/O assembly opening.**
3. **Slide the I/O assembly into the I/O assembly opening (**FIGURE 4-5**).**

   The ejector levers should be on the inside of the I/O assembly and in the open position.

Caution – DO NOT FORCE any assembly into a opening; this can cause damage to the assembly and system. The assembly should insert and seat smoothly. If it binds, remove the assembly and inspect the I/O assembly opening for any obvious obstructions.

---

4. **Simultaneously press the two ejector levers inward.**
5. **Tighten the four captive Phillips screws snugly by hand. (**FIGURE 4-4**).**
6. **Power on the assembly.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the assembly.
7. **Initialize the domain.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for initializing a domain.

4.3.4 Replacing PCI Cards

To remove and replace PCI cards, you must remove the PCI I/O assembly from the system and place it on an ESD mat.

4.3.4.1 Removing a PCI Card

1. **Attach a wrist strap or foot strap. Connect the ESD strap to the system.**
2. **Place a grounded ESD mat close to the system.**
3. **Remove the I/O assembly from the system and place it on an ESD mat.**
   See Section 4.3.3.1 “Removing a PCI I/O Assembly” on page 4-7.”
4. **Remove the PCI card by removing the Phillips screw and pulling the PCI card out of the slot (**FIGURE 4-6**).**

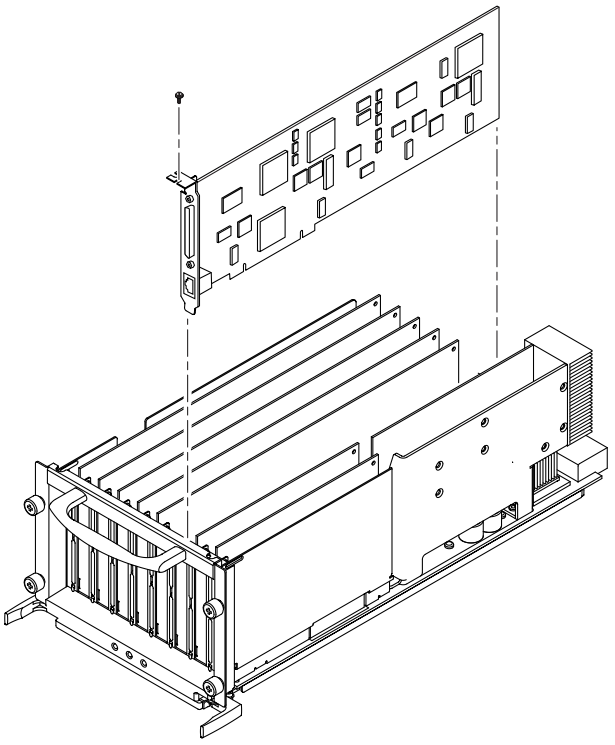


FIGURE 4-6 Removing a PCI Card From the I/O Assembly

5. **If you are not going to replace the PCI card, insert a filler board into the empty PCI slot.**

4.3.4.2 Installing a PCI Card

Caution – Short PCI boards longer than 6.6 inches (167 mm) must be installed in a long PCI card slot.

1. **Attach a wrist strap or foot strap. Connect the ESD strap to the system.**
2. **Place a grounded ESD mat close to the system.**

Caution – The system is sensitive to static electricity.

3. **Remove the I/O assembly from the system and place it on an ESD mat.**

   See Section 4.3.3.1 “Removing a PCI I/O Assembly” on page 4-7.”

4. **Line up the screw hole on the mounting bracket with the mounting hole.**
5. **Slide the card down vertically between the two embossed fixtures on the front of the PCI panel.**

   Look for bumps between the slots on the rear panel. Slide the card in between the bumps.

6. **Apply equal pressure on both sides of the card until the card is seated in the connector.**
7. **Insert and tighten the Phillips screw.**
8. **Make sure that filler boards are in all unused PCI slots on the PCI I/O assembly.**
9. **Replace the PCI I/O assembly.**

   See Section 4.3.3.2 “Installing a PCI I/O Assembly” on page 4-9.”

CHAPTER 5

CompactPCI I/O Assemblies and Components

Only the Sun Fire 3800 system supports the CompactPCI I/O assembly. This chapter provides an overview of the CompactPCI I/O assembly, including how to remove and replace the CompactPCI I/O assembly in the Sun Fire 3800 system.

To protect both yourself and the equipment, make sure you follow the precautions in Chapter 1."

This chapter contains the following sections:

- Section 5.1 "Handling Boards and Assemblies" on page 5-1
- Section 5.2 "Filler Boards, Filler Panels, and CompactPCI Filler Cards" on page 5-3
  - Section 5.3.3 "Replacing CompactPCI I/O Assemblies" on page 5-5
  - Section 5.3.4 "Replacing CompactPCI Cards" on page 5-7

For your protection, also observe the following safety precautions when setting up your equipment:

- Follow all cautions, warnings, and instructions marked on the equipment.
- Never push objects of any kind through openings in the equipment, as they may touch dangerous voltage points or short out components that can result in fire or electric shock.
- Refer servicing of equipment to qualified personnel.

5.1 Handling Boards and Assemblies

Caution – The chassis AC power cord must remain connected to ensure a proper ground.

Caution – The system is sensitive to static electricity. To prevent damage to the assembly, connect an antistatic wrist strap between you and the system.

Caution – The I/O assemblies, their modules, and their cards have surface-mount components that can be broken if you flex the assemblies.

To minimize the amount of board flexing, observe the following precautions:

- Hold the board only by the edges near the middle of the board, where the board stiffener is located. Do not hold the board *only* at the ends.
- When removing the board from an antistatic bag, keep the board vertical until you lay it on the Sun ESD mat.
- Do not place the board on a hard surface. Use a cushioned antistatic mat. The board connectors and components have very thin pins that bend easily.
- Be careful of small parts located on the component side of the board.
- Do not use an oscilloscope probe on the components. The soldered pins are easily damaged or shorted by the probe point.
- Transport the board in an antistatic bag.

Caution – The heat sinks on the board can be damaged by incorrect handling. Do not touch the heatsinks while replacing or removing the board. Hold the board only by the edges. If a heatsink is loose or broken, obtain a replacement board.

Caution – The heatsinks on the board can be damaged by improper packaging. When storing or shipping the board, ensure that the heatsinks have sufficient protection.

Note – The CompactPCI I/O assembly or CompactPCI card can be inserted into a powered-on system. The assembly will not be recognized by the system until the domain has been re-initialized and rebooted. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for initializing a domain.

5.2 Filler Boards, Filler Panels, and CompactPCI Filler Cards

In order to prevent the system from overheating, see Section 1.4 “Filler Boards and Filler Panels” on page 1-4 for procedures you must follow when removing the I/O assembly from a system.

Caution – You must install a filler panel, which covers only the front of the I/O assembly opening, if the system is to be powered on without the I/O assembly being replaced. Install CompactPCI filler cards into the empty CompactPCI card slots.

Caution – Make sure ALL slots in the I/O assemblies are filled by cards OR filler cards.

5.3 CompactPCI I/O Assembly

The Sun Fire 3800 system supports only the CompactPCI I/O assembly. TABLE 5-1 describes the CompactPCI I/O assembly.

TABLE 5-1 Description of the CompactPCI I/O Assembly

I/O Assembly	Description
CompactPCI I/O assembly (Sun Fire 3800 system)	Six CompactPCI slots. Peak I/O throughput for the cards in slots 0 and 1 is 66/33 MHz, 64-bit, and 3.3V I/O. Peak I/O throughput for the cards in slots 2 through 5 is 33 MHz, 64-bit, and 5 V I/O.

5.3.1 CompactPCI I/O Assembly Location Requirements

TABLE 5-2 Location of the I/O Assemblies

System	Slot Numbers	Location
Sun Fire 3800	IB6, IB8	Front

5.3.1.1 Location Requirements for the Sun Fire 3800 System

FIGURE 5-1 illustrates the I/O assembly locations for the Sun Fire 3800 system.

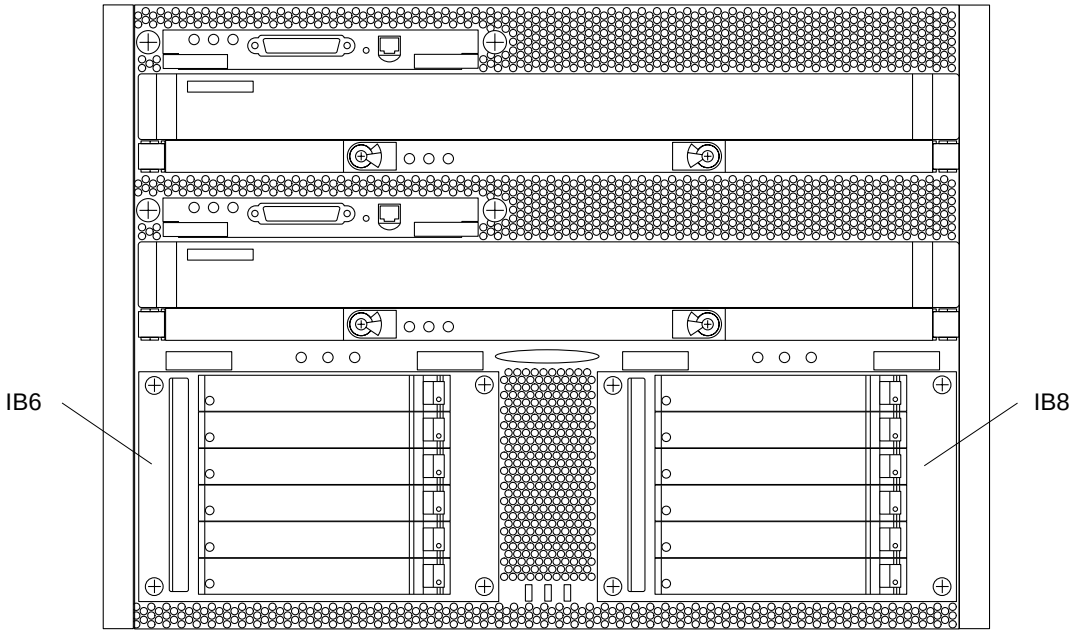


FIGURE 5-1 I/O Assemblies for the Sun Fire 3800 System—Front View

The Sun Fire 3800 system supports only the CompactPCI I/O assembly. Populate the left I/O location, IB6, first and the right I/O location, IB8, last.

5.3.2 I/O Assembly Status LEDs

There are three CompactPCI I/O assembly status LEDs on the I/O assembly. This I/O assembly has additional LEDs for each of the CompactPCI cards. TABLE 5-3 describes the main CompactPCI I/O assembly status LED functions.

TABLE 5-3 I/O Assembly Status LED Functions

LED	On	Off
Activated LED (green)	Device is activated	Device is deactivated
Fault LED (amber)	Internal fault	No internal fault
OK to remove LED (amber)	Assembly can be removed	Assembly cannot be removed

5.3.3 Replacing CompactPCI I/O Assemblies

5.3.3.1 Removing a CompactPCI I/O Assembly

1. **Power off the assembly.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the assembly.

2. **Attach a wrist strap or foot strap. Connect the ESD strap to the system. Place a grounded ESD mat close to the system.**

3. **Loosen the four captive Phillips screws.**

4. **Simultaneously pull the two ejector levers outward to unseat the assembly.**

   The ejectors must be perpendicular to the I/O assembly. This action releases the board from the connectors.

5. **With one hand holding the handle and the other hand beneath the assembly for support, slide the assembly out of the card cage.**

   FIGURE 5-2 shows how to remove the I/O assembly from the system.

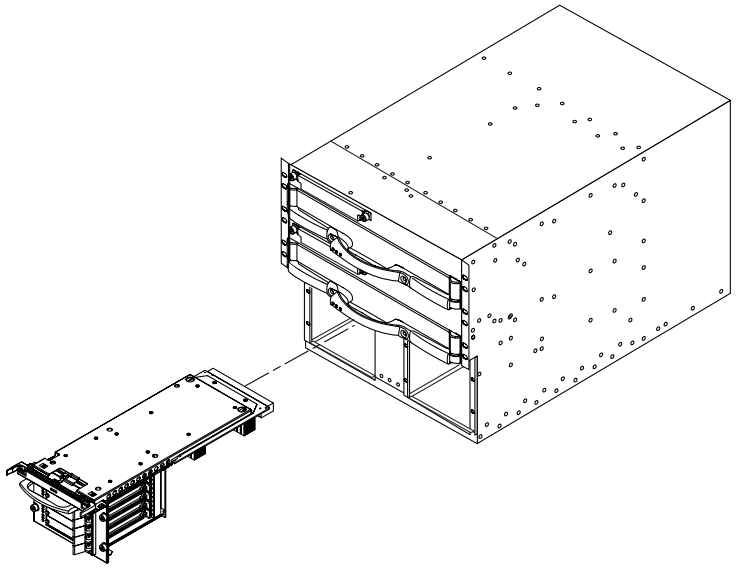


FIGURE 5-2 Removing or Inserting a CompactPCI I/O Assembly—Sun Fire 3800 System

6. **Place the assembly on an ESD mat that is on a work surface.**

5.3.3.2 Installing a CompactPCI I/O Assembly

1. **Attach a wrist strap or foot strap. Connect the ESD strap to the system. Place a grounded ESD mat close to the system.**
2. **Remove the filler panel, if installed, from the front of the I/O assembly location.**
3. **Move the ejector levers on the I/O assembly to the open position.**

   The ejectors must be 90 degrees perpendicular to the I/O assembly.
4. **Line up the I/O assembly with the I/O assembly opening.**
5. **Holding the I/O assembly with one hand on the handle and the other hand underneath the assembly, guide the assembly into the card guides.**

   The ejector levers should be in the open position.

Caution – DO NOT FORCE any I/O assembly into an opening; this can cause damage to the assembly and system. The assembly should insert and seat smoothly. If it binds, remove the assembly and inspect the card cage slot for any obvious obstructions.

6. **After the assembly is completely into the card cage, simultaneously press the two ejector levers inward into the closed position.**

7. **Tighten the four captive Phillips screws.**

8. **Power on the assembly.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete system procedures for powering on the assembly.

Note – The assembly will not be recognized by the system until the domain has been re-initialized and rebooted. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for initializing a domain.

5.3.4 Replacing CompactPCI Cards

The CompactPCI I/O assembly for the Sun Fire 3800 system supports six CompactPCI cards.

5.3.4.1 Removing a CompactPCI Card

1. **Power off the card.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete system procedures for powering off the card.

2. **Attach a wrist strap or foot strap. Connect the ESD strap to the system. Place a grounded ESD mat close to the system.**

3. **Disconnect any cables from the card that is being removed.**

4. **Loosen the two captive screws, one at each end of the card.**

5. **Press the red lever lock in the lever sideways to unlock the lever (**FIGURE 5-3**).**

Caution – Do not hold, pull, or push the CompactPCI card by the lever lock. The lever lock is not designed to be used as a handle. Hold the card by the front panel or edges only.

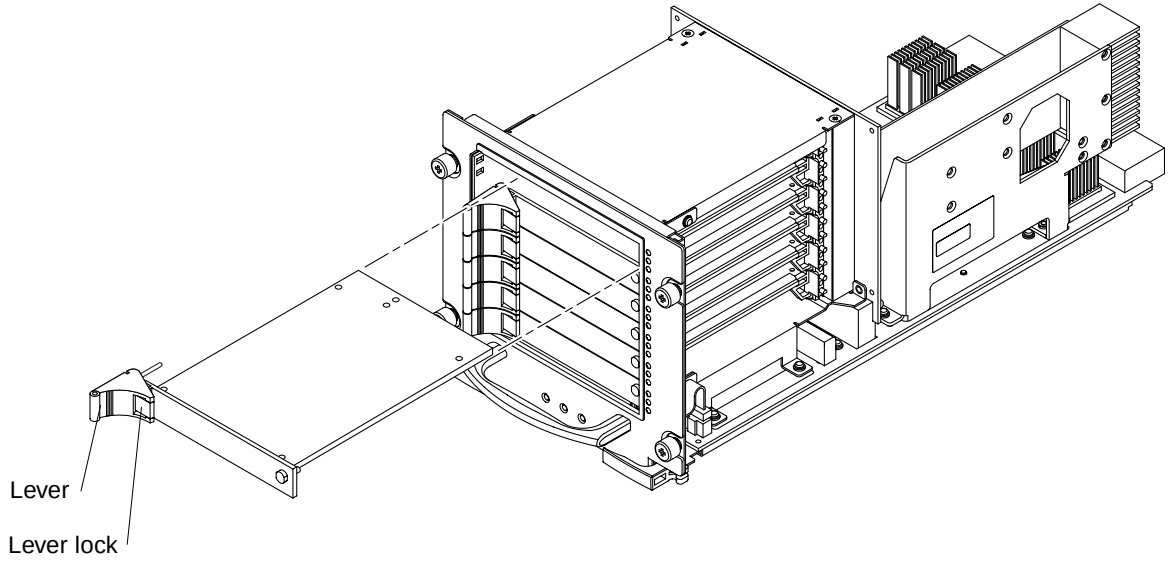


FIGURE 5-3 Removing a CompactPCI Card

6. **Press the lever outward to eject the card.**
7. **Slide the card out of the slot.**
8. **Install a filler card in the empty CompactPCI slot if you will not be installing another CompactPCI card into the slot.**

   You must have either a filler card or a CompactPCI card installed in all CompactPCI card slots.

5.3.4.2 Installing a CompactPCI Card

1. **Attach a wrist strap or foot strap. Connect the ESD strap to the system.**
2. **Remove the filler panel.**
3. **Press the red lever lock in the lever sideways to unlock the lever to the open position (**FIGURE 5-3**).**

Caution – Do not hold, pull, or push the CompactPCI card by the lever lock. The lever lock is not designed to be used as a handle. Hold the card by the front panel or edges only.

4. **Hold the card by the two side edges or the front panel and slide the card into the slot between the two guides (**FIGURE 5-4**).**

   The cuts in the lever lock of the card must align with the square cutouts on the CompactPCI I/O assembly.

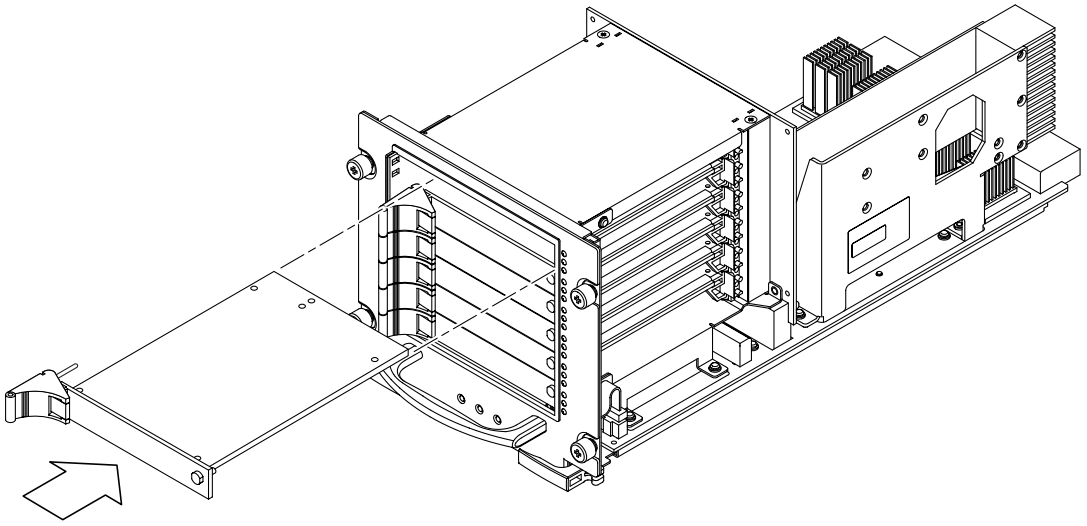


FIGURE 5-4 Replacing a CompactPCI Card

5. **Press on the front panel to completely seat the card in the I/O assembly.**
6. **Push the lever in to lock the lever. You should feel it click.**
7. **Tighten the two captive screws, one at each end of the card.**
8. **Power on the card.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the card.

Note – The CompactPCI card will not be recognized by the system until the domain has been re-initialized and rebooted. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for initializing a domain.

CHAPTER 6

System Controller Board

This chapter describes how to remove and replace the system controller board.

To protect both yourself and the equipment, make sure you follow the precautions in Chapter 1 “Safety and Tools Requirements.”

This chapter contains the following sections:

- Section 6.1 “Handling Boards and Assemblies” on page 6-1
- Section 6.2 “System Controller Board” on page 6-2
  - Section 6.2.1 “System Controller Board Slot Locations” on page 6-4
  - Section 6.2.2 “System Controller Board LEDs” on page 6-8
  - Section 6.2.4 “Replacing a System Controller Board” on page 6-9

For your protection, also observe the following safety precautions when setting up your equipment:

- Follow all cautions, warnings, and instructions marked on the equipment.
- Never push objects of any kind through openings in the equipment, as they may touch dangerous voltage points or short out components that can result in fire or electric shock.
- Refer servicing of equipment to qualified personnel.

6.1 Handling Boards and Assemblies

Caution – The chassis AC power cord(s) must remain connected to ensure a proper ground.

Caution – The system is sensitive to static electricity. To prevent damage to the board, connect an antistatic wrist strap or foot strap between you and the system.

Caution – The System Controller board and its modules have surface-mount components that can be broken if you flex the board.

To minimize the amount of board flexing, observe the following precautions:

- Hold the board by the edges and by the rear panel, which is attached to the board.
- When removing the board from an antistatic bag, keep the board vertical until you lay it on the Sun ESD mat.
- Do not place the board on a hard surface. Use a cushioned antistatic mat. The board connectors and components have very thin pins that bend easily.
- Do not use an oscilloscope probe on the components. The soldered pins are easily damaged or shorted by the probe point.
- Transport the board in an antistatic bag.

6.2 System Controller Board

The System Controller board contains the system clock and a system controller. One System Controller board is required per system. At this time, two System Controller boards are supported in all systems.

The System Controller board provides:

- Programmable system and processor clock
- Serial port
- RJ-45 Ethernet port
- Redundant System Controller board that can take over from the main System Controller board
- Centralized time-of-day (TOD) chip
- Centralized reset logic
- Status and control of power supplies

The System Controller board consists of the following subsystems:

- Console Bus
- Clocks
- Reset logic
- Centerplane connector signals

For the connector, captive screw, ejector lever, and reset switch locations, see FIGURE 6-1.

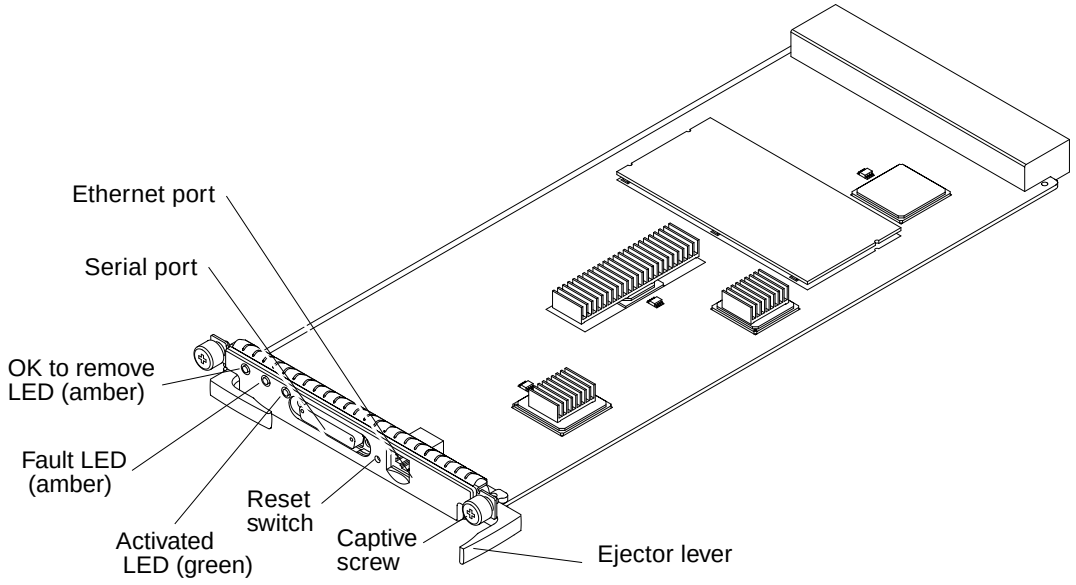


FIGURE 6-1 System Controller Board for Sun Fire 6800/4810/4800 Systems

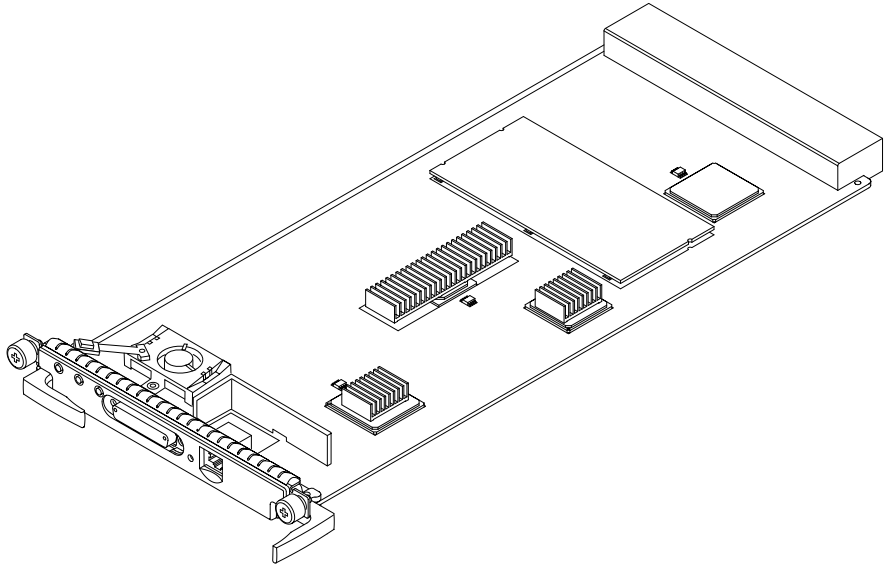


FIGURE 6-2 System Controller Board for the Sun Fire 3800 System

6.2.1 System Controller Board Slot Locations

TABLE 6-1 System Controller Board Slot Locations for All Systems

System	Slot Numbers	Location
Sun Fire 6800 system	SSC0 (master) and SSC1 (redundant controller)	Front
Sun Fire 4810 system	SSC0 (master) and SSC1 (redundant controller)	Front
Sun Fire 4800 system	SSC0 (master) and SSC1 (redundant controller)	Rear
Sun Fire 3800 system	SSC0 (master) and SSC1 (redundant controller)	Front

FIGURE 6-3, FIGURE 6-4, FIGURE 6-5 and FIGURE 6-6 illustrate the System Controller board slot assignments.

For all systems, the System Controller board in the lower slot, SSC0, is the master System Controller board. The System Controller board in the top slot, SSC1, is the redundant System Controller board.

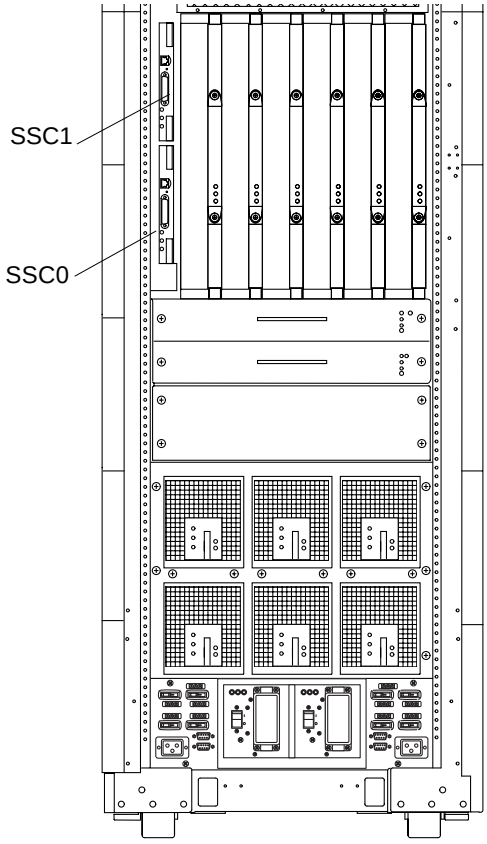


FIGURE 6-3 System Controller Board Slot Assignments for the Sun Fire 6800 System—Front View

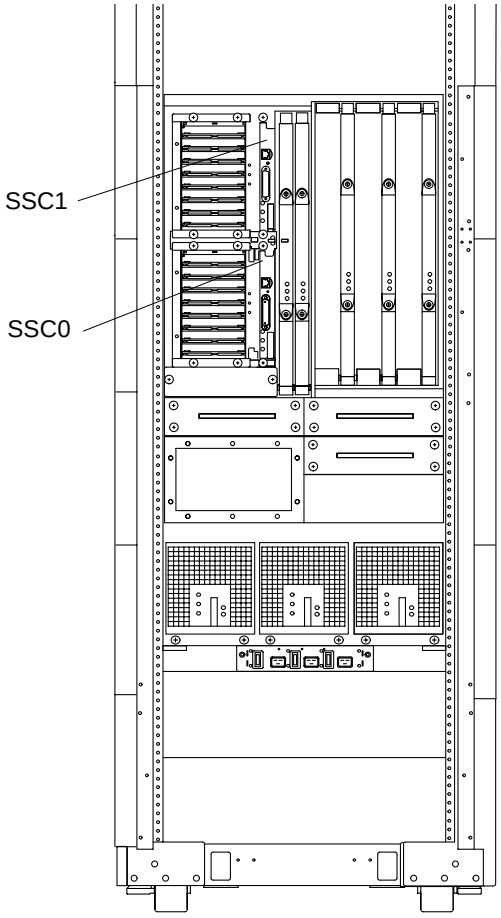


FIGURE 6-4 System Controller Board Slot Assignments for the Sun Fire 4810 System—Front View

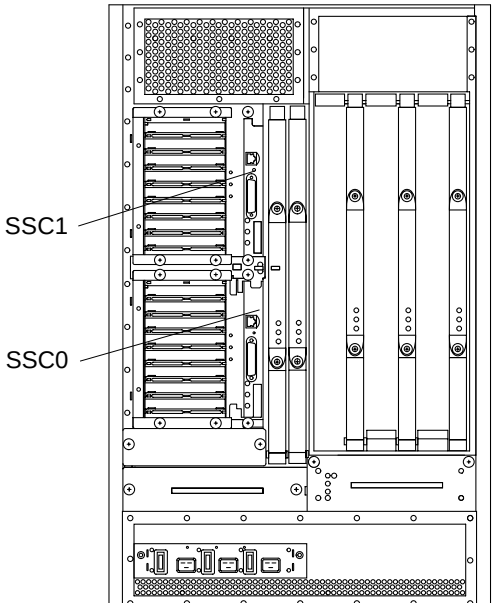


FIGURE 6-5 System Controller Board Slot Assignments for the Sun Fire 4800 System—Rear View

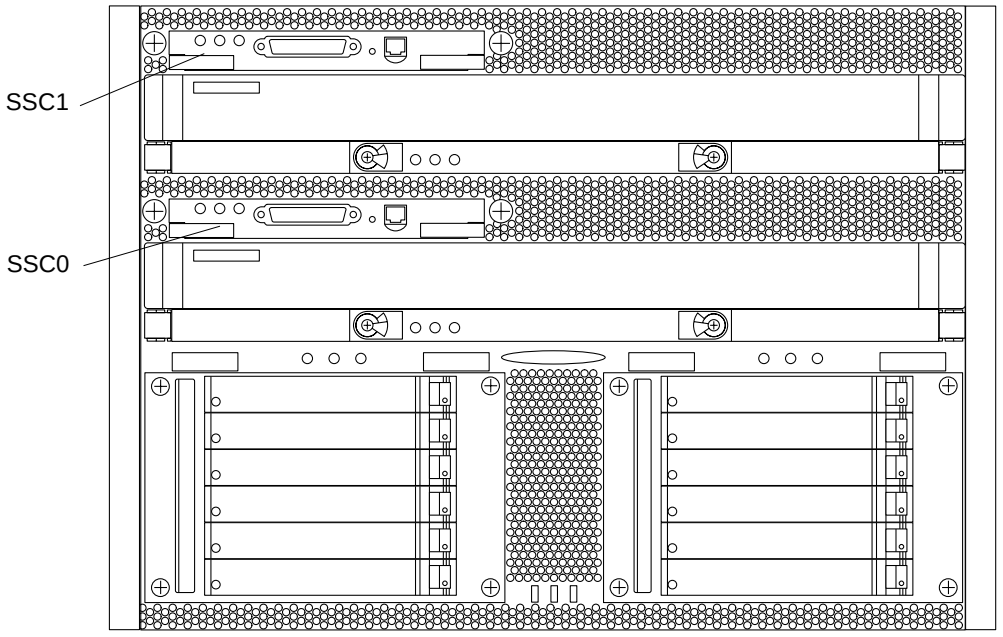


FIGURE 6-6 System Controller Board Slot Assignments for the Sun Fire 3800 System—Front View

6.2.2 System Controller Board LEDs

There are three LEDs on the System Controller board. TABLE 6-2 notes the LED functions.

TABLE 6-2 System Controller Board LED Functions

LED Name and Location	On	Off
Activated LED (green)	Board is activated	Board is deactivated.
Fault LED (amber)	Internal fault	No internal fault
OK to remove LED (amber)	Assembly can be removed	Assembly cannot be removed

6.2.3 Resetting the System Controller Board

If the System Controller board hangs and will not respond:

- **Press the Reset switch (**FIGURE 6-7**) by using a pen tip to reset the System Controller board so that it reboots.**

  Pressing the reset switch reloads the system controller software. Pressing the reset switch does not have any adverse effect on domains.

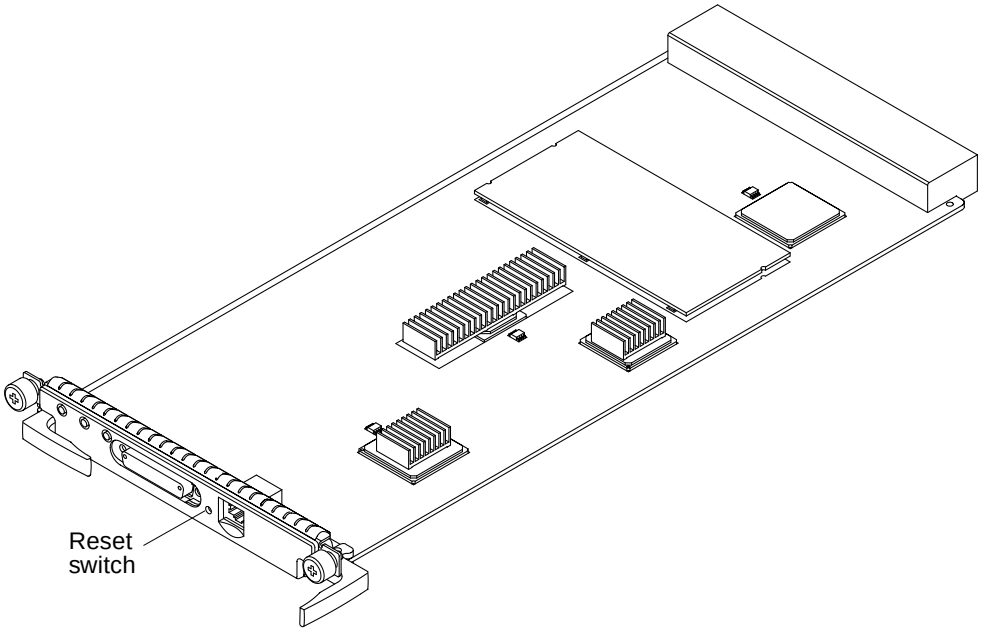


FIGURE 6-7 Reset Switch on a System Controller Board

6.2.4 Replacing a System Controller Board

6.2.4.1 Removing the System Controller Board

Caution – To avoid damaging internal circuits, do not disconnect or connect any cable while power is applied to the system.

1. **Power off the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete system procedures for powering off.

2. **Attach a wrist strap or foot strap. Connect the ESD strap to the system. Place a grounded ESD mat close to the system.**

Caution – The system is sensitive to static electricity.

3. **Disconnect the serial or network cable from the board.**

4. **Loosen the two captive screws (**FIGURE 6-8**) on the System Controller board by using a Phillips #2 screwdriver).**

   These fasteners are springloaded. They will pop out when completely unfastened.

5. **Pull outward on the board ejectors to unseat the board (**FIGURE 6-8**).**

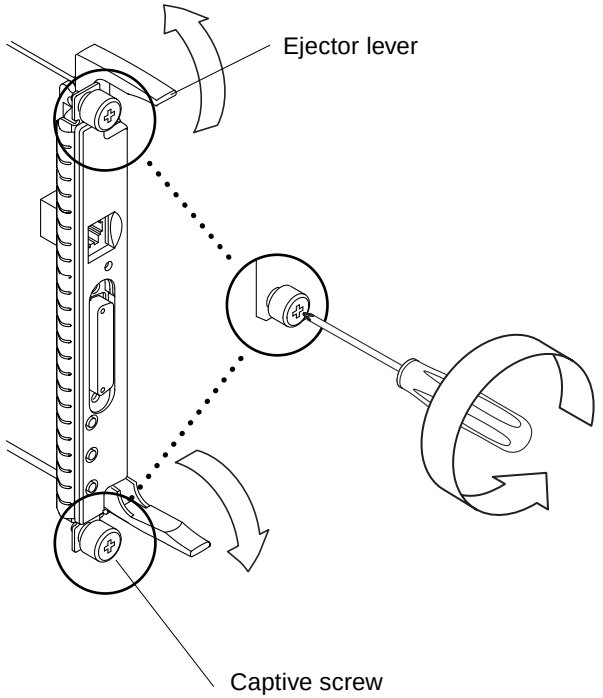


FIGURE 6-8 Loosening the Captive Screws and Ejector Levers

6. **Slide the board out (**FIGURE 6-9 **and** FIGURE 6-10**).**

FIGURE 6-9 illustrates how to install or remove the board for a Sun Fire 6800 system. FIGURE 6-10 illustrates how to install or remove the board for a Sun Fire 3800 system.

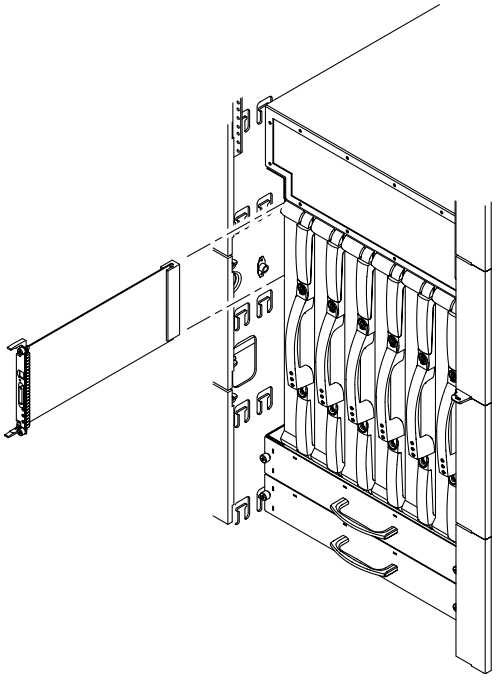


FIGURE 6-9 Removing and Replacing a System Controller Board—Sun Fire 6800 System

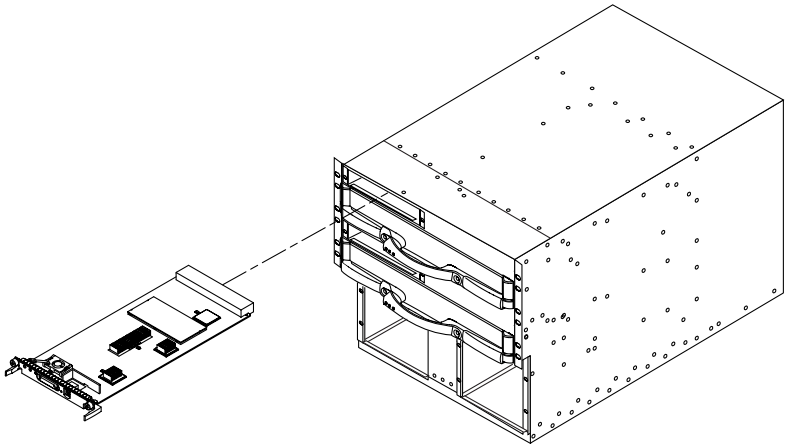


FIGURE 6-10 Removing and Replacing a System Controller Board—Sun Fire 3800 System

6.2.4.2 Installing the System Controller Board

1. **Power off the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete system procedures for powering off.

2. **Attach a wrist strap or foot strap. Connect the ESD strap to the system. Place a grounded ESD mat close to the system.**

Caution – The system is sensitive to static electricity.

3. **Turn both board ejectors outward before you insert the board into the card cage.**

4. **Line up the board with the slots.**

   - For the Sun Fire 6800/4810/4800 systems, slide the board into the card cage slot (FIGURE 6-9).
   - For the Sun Fire 3800 system, put one hand on the center of the board and the other hand on the front panel. Slide the board into the slot.

Caution – DO NOT FORCE any board into a slot; this can cause damage to the board and system. The board should insert and seat smoothly. If it binds, remove the board and inspect the card cage slot for any obvious obstructions.

5. **After the board is completely into the card cage, simultaneously push inward on both board ejectors (**FIGURE 6-11**).**

6. **Tighten the captive fasteners by using a Phillips #2 screwdriver (**FIGURE 6-11**).**

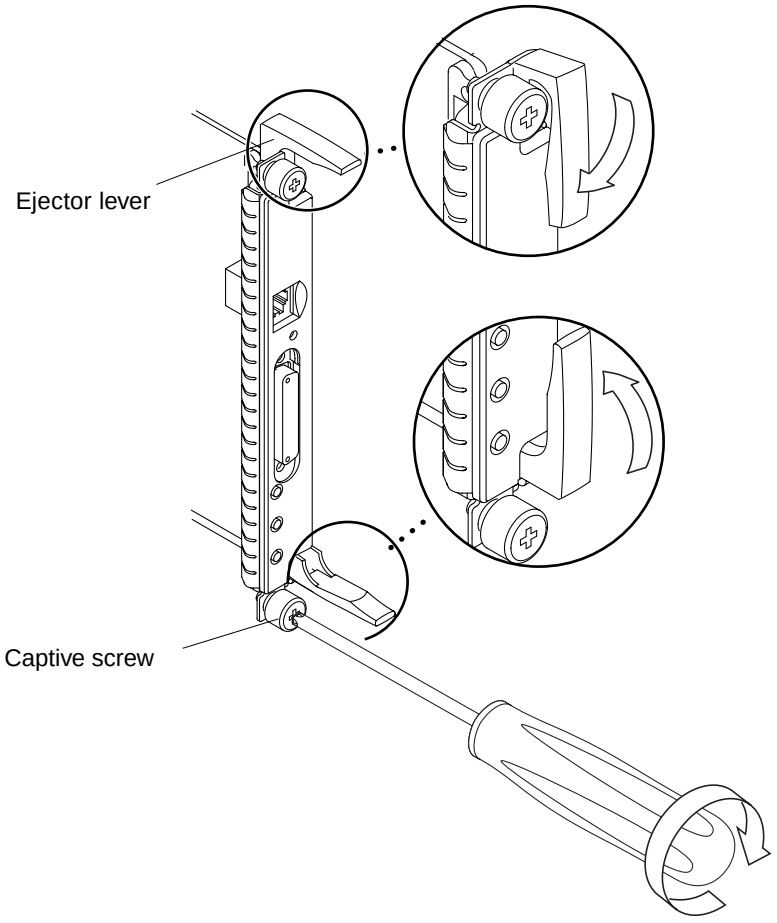


FIGURE 6-11 Tightening the Captive Screws and Locking the Ejector Levers

7. **Connect the serial or network cable to the board.**

8. **Power on the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete system procedures for powering on.

CHAPTER 7

Repeater Board

To protect both yourself and the equipment, make sure you follow the precautions in Chapter 1 “Safety and Tools Requirements.”

This chapter explains the following topics:

- Section 7.1 “Handling Boards and Assemblies” on page 7-1
- Section 7.2 “Filler Boards” on page 7-2
- Section 7.3 “Repeater Board” on page 7-2
  - Section 7.3.1 “Replacing Repeater Boards” on page 7-7

For your protection, also observe the following safety precautions when setting up your equipment:

- Follow all cautions, warnings, and instructions marked on the equipment.
- Never push objects of any kind through openings in the equipment, as they may touch dangerous voltage points or short out components that can result in fire or electric shock.
- Refer servicing of equipment to qualified personnel.

7.1 Handling Boards and Assemblies

Caution – The chassis AC power cord must remain connected to ensure a proper ground.

Caution – The Repeater boards have surface-mount components that can be broken if you flex the boards.

To minimize the amount of board flexing, observe the following precautions:

- Hold the board only by the handle and the edges near the middle of the board, where the board stiffener is located. Do not hold the board *only* at the ends.
- When removing the board from an antistatic bag, keep the board vertical until you lay it on the Sun ESD mat.
- Do not place the board on a hard surface. Use a cushioned antistatic mat. The board connectors and components have very thin pins that bend easily.
- Do not use an oscilloscope probe on the components. The soldered pins are easily damaged or shorted by the probe point.
- Transport the board in an antistatic bag.

Caution – The system is sensitive to static electricity. To prevent damage to the unit, connect an antistatic wrist strap or foot strap between you and the system.

Note – The Repeater board can be inserted into a powered-on system. The board will not be recognized by the system until the domain has been re-initialized and rebooted. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for initializing a domain.

7.2 Filler Boards

All empty board slots in the systems must have filler boards installed for cooling purposes and for EMI protection. To prevent the system from overheating, see Section 1.4 “Filler Boards and Filler Panels” on page 1-4 for procedures you must follow when removing Repeater boards from a system.

7.3 Repeater Board

The Repeater board acts as a switch and connects multiple CPU and I/O boards. In the Sun Fire 4810 and Sun Fire 4800 systems, Repeater boards work as single boards. However, in the Sun Fire 6800 system, the Repeater boards work in pairs. In the Sun Fire 3800 system, the equivalent of two Repeater boards is integrated into the active centerplane.

To remove a Repeater board from the system and install a replacement board, you must halt the Solaris Operating Environment (either the entire system or only the affected domains).

For more information on the Repeater board functionality, see the *Sun Fire 6800/4810/4800/3800 Systems Overview Manual.*

TABLE 7-1 shows the Repeater board locations.

TABLE 7-1 Repeater Board Slot Locations

System	Slot Number	Location
Sun Fire 6800	RP2, RP3, RP0, RP1	Rear
Sun Fire 4810	RP0, RP2	Front
Sun Fire 4800	RP0, RP2	Rear

FIGURE 7-1, FIGURE 7-2, and FIGURE 7-3 illustrate the Repeater board slot assignments for the Sun Fire 6800/4810/4800 systems.

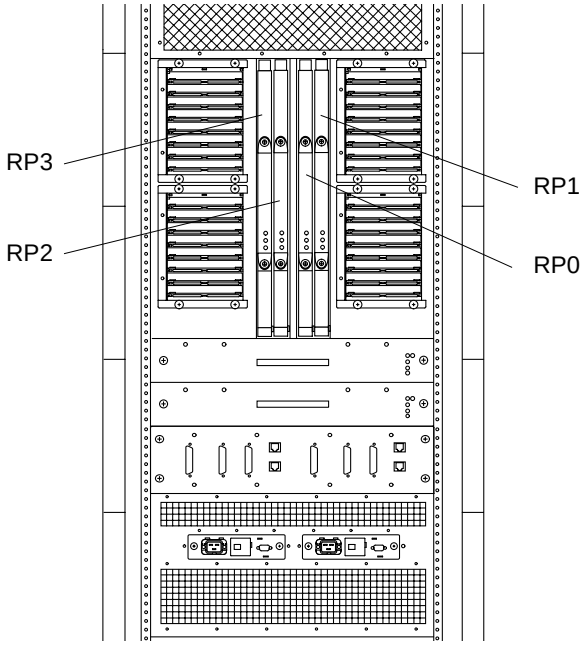


FIGURE 7-1 Repeater Board Slot Assignments for the Sun Fire 6800 System—Rear View

In the Sun Fire 6800 system, Repeater boards work in pairs: RP0 with RP1, and RP2 with RP3. Populate Repeater board pairs on the Sun Fire 6800 system from right to left, beginning with RP0 and RP1.

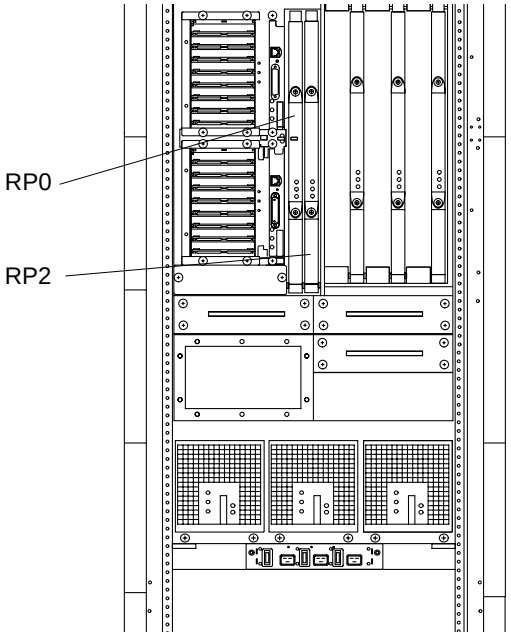


FIGURE 7-2 Repeater Board Slot Assignments for the Sun Fire 4810 System—Front View

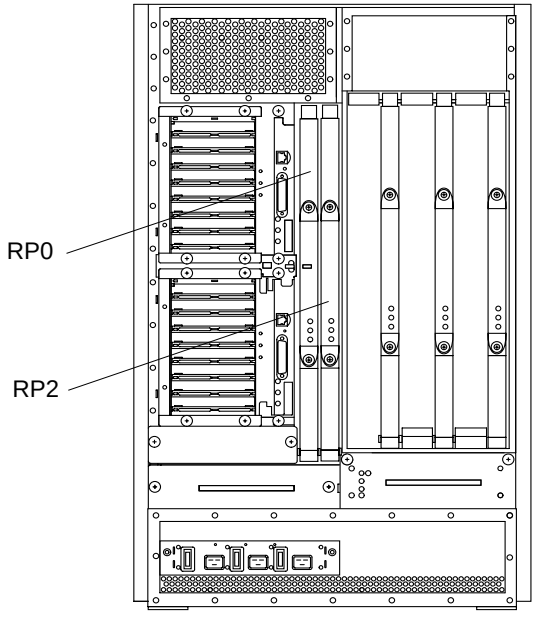


FIGURE 7-3 Repeater Board Slot Assignments for the Sun Fire 4800 System—Rear View

In the Sun Fire 4810 and Sun Fire 4800 systems, there are two Repeater boards: RP0 and RP2. Populate the Repeater boards from left to right.

There are three LEDs on the Repeater board. TABLE 7-2 notes the LED functions.

TABLE 7-2 Repeater Board LED Functions

LED Name and Location	On	Off
Activated LED (green)	Board is activated	Board is deactivated
Fault LED (amber)	Internal fault	No internal fault
OK to remove LED (amber)	Board can be removed	Board can not be removed

FIGURE 7-4 illustrates the Repeater board LEDs.

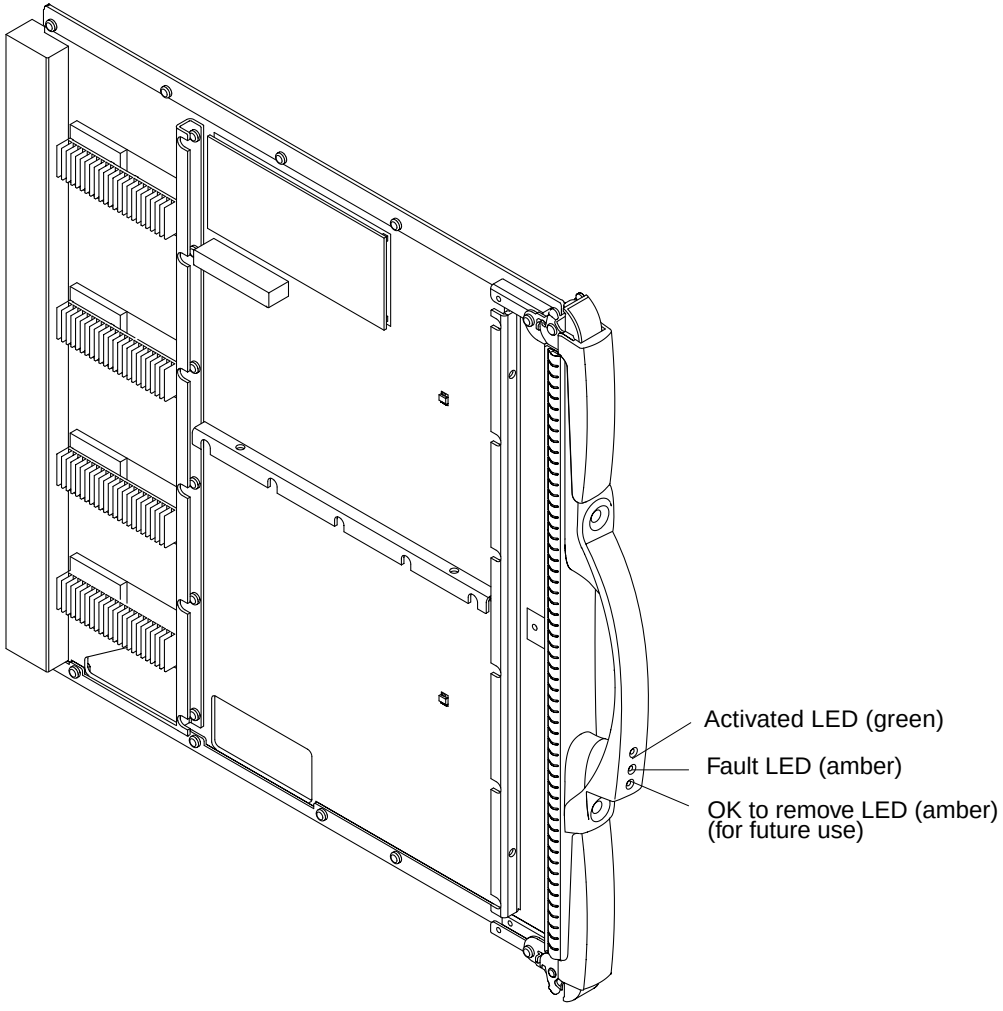


FIGURE 7-4 Repeater Board LEDs

7.3.1 Replacing Repeater Boards

7.3.1.1 Removing a Repeater Board

1. **Halt the domain and power off the board.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the board.

2. **Attach a wrist strap or foot strap. Connect the ESD strap to the system. Place a grounded ESD mat close to the system.**

3. **Unlock the ejectors on the Repeater board by using a Phillips #2 screwdriver (**FIGURE 7-5**).**

   The ejectors will pop out slightly.

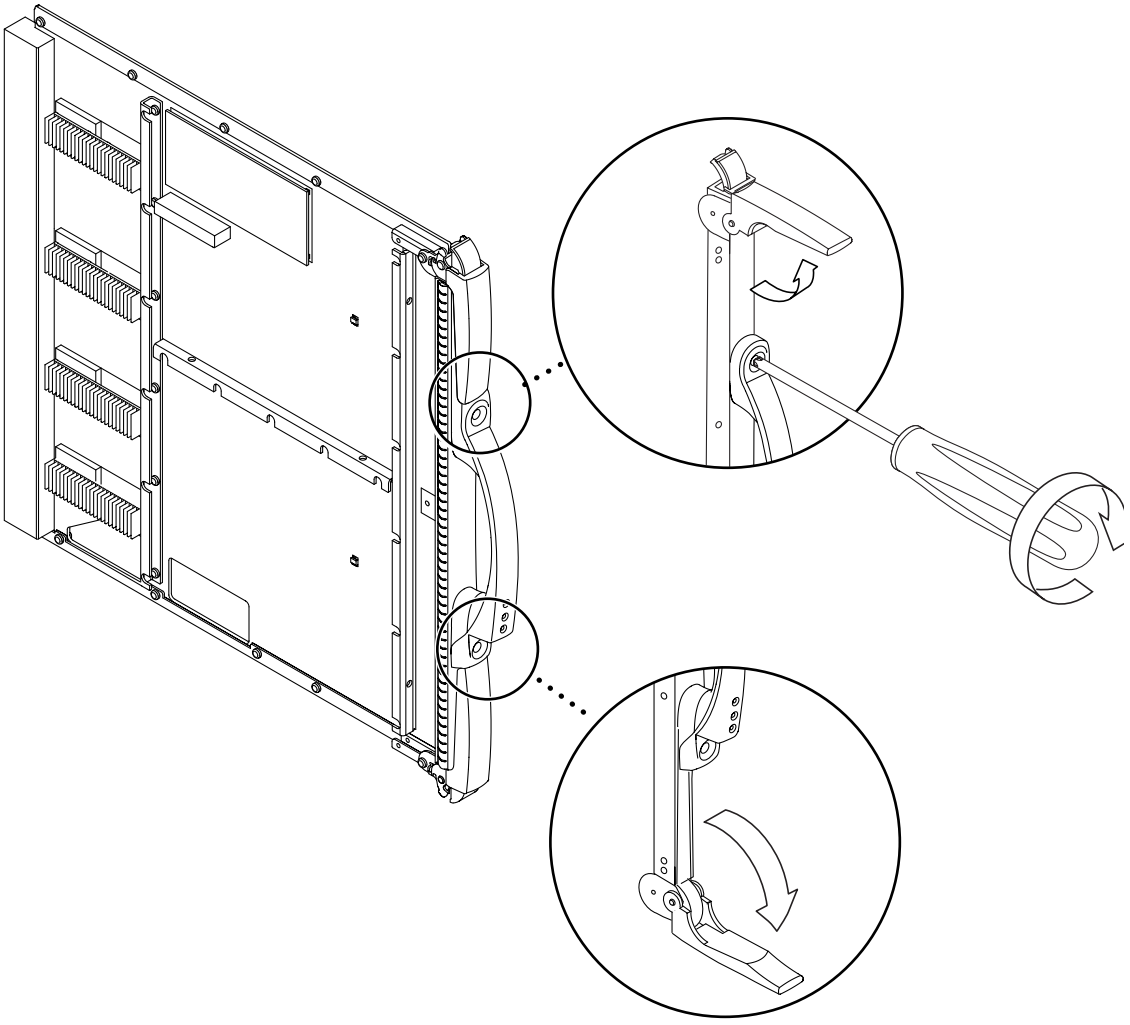


FIGURE 7-5 Unlocking the Ejector Levers

4. **Rotate the ejector levers simultaneously until they are 90 degrees from the board (straight out) (**FIGURE 7-5**).**

   This action unseats the board from the connector.

5. **Remove the board from the card cage by grabbing the handle and sliding the board along the track until the board is out of the card cage (**FIGURE 7-6**).**

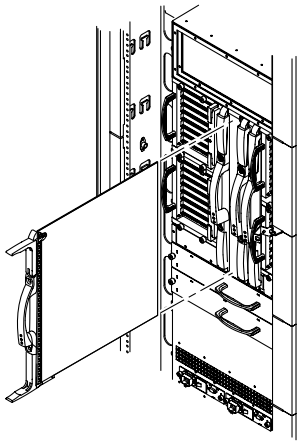


FIGURE 7-6 Removing and Replacing a Repeater Board—Sun Fire 6800 System

6. **Place the board on an ESD mat that is on a work surface.**

7.3.1.2 Installing a Repeater Board

1. **Attach a wrist strap or foot strap. Connect the ESD strap to the system. Place a grounded ESD mat close to the system.**

2. **Make sure that the ejector levers are in the open position. They should be 90 degrees straight out from the board.**

Caution – DO NOT FORCE any board into a slot; it can cause damage to the board and system. The board should insert and seat smoothly. If it binds, remove the board and inspect the card cage slot for any obvious obstructions. Also inspect both the board and the centerplane for bent pins or other damage.

3. **Gently insert the Repeater board into the grooves of the proper slot (see** TABLE 7-1 **on page 7-3 for slot locations) until the board stops (**FIGURE 7-6**).**

4. **Simultaneously rotate both ejectors until they are in the closed position, flush with the board.**

   When properly installed, the ejectors will lock automatically.

5. **Power on the board.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the board.

6. **Initialize the domain.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for initializing a domain.

CHAPTER 8

Power

This chapter describes the how to remove and replace power supplies and the AC input box. Location information on the RTS modules is also provided. To protect both yourself and the equipment, make sure you follow the safety precautions in Chapter 1 “Safety and Tools Requirements.”

This chapter contains the following sections:

- Section 8.1 “Power Supplies” on page 8-1
  - Section 8.1.1 “Power Supply Slot Locations” on page 8-3
  - Section 8.1.2 “Power Supply LEDs” on page 8-7
  - Section 8.1.3 “Replacing a Sun Fire 6800/4810 System Power Supply” on page 8-7
  - Section 8.1.4 “Replacing a Sun Fire 4800 System Power Supply” on page 8-9
  - Section 8.1.5 “Replacing a Sun Fire 3800 System Power Supply” on page 8-10
- Section 8.2 “AC Input Box” on page 8-12
  - Section 8.2.1 “Replacing the AC Input Box” on page 8-14
- Section 8.3 “Redundant Transfer Unit (RTU) and Redundant Transfer Switch (RTS)” on page 8-16
  - Section 8.3.1 “Replacing the RTS Modules” on page 8-19
  - Section 8.3.2 “Replacing the RTU Assembly” on page 8-19

8.1 Power Supplies

These systems offer redundant power supplies. The Sun Fire 6800 and Sun Fire 4810 systems use the same interchangeable power supplies. The Sun Fire 4800 system and the Sun Fire 3800 system each have specialized power supplies that cannot be interchanged with each other or with any other Sun Fire systems.

Each board in the systems has localized DC-to-DC converters to provide the correct voltages.

TABLE 8-1 lists the specifications for the power supplies.

TABLE 8-1 Specifications for the Power Supplies

System Type	Power Supplies per System	Main Voltage Output DC	Auxiliary Voltage Output DC
Sun Fire 3800	3	56	56
Sun Fire 4800	3	56	56
Sun Fire 4810	3	56	56
Sun Fire 6800	6	56	56

There are four alternating current (AC) power cords for the Sun Fire 6800 system. There are three AC power cords for the Sun Fire 4810 and the Sun Fire 4800 systems. Each power supply in the Sun Fire 3800 system has its own power cord. The software monitors the status of the AC power source. For more information on the power supplies, see Appendix A.

8.1.1 Power Supply Slot Locations

TABLE 8-2 Power Supply Slot Locations

System	Slot Numbers	Slot Location	Default Slot Numbers
Sun Fire 6800	PS0–PS5	Front	PS0–PS5
Sun Fire 4810	PS0, PS1, PS2	Front	PS0
Sun Fire 4800	PS0, PS1, PS2	Front	PS0
Sun Fire 3800	PS0, PS1, PS2	Rear	PS0

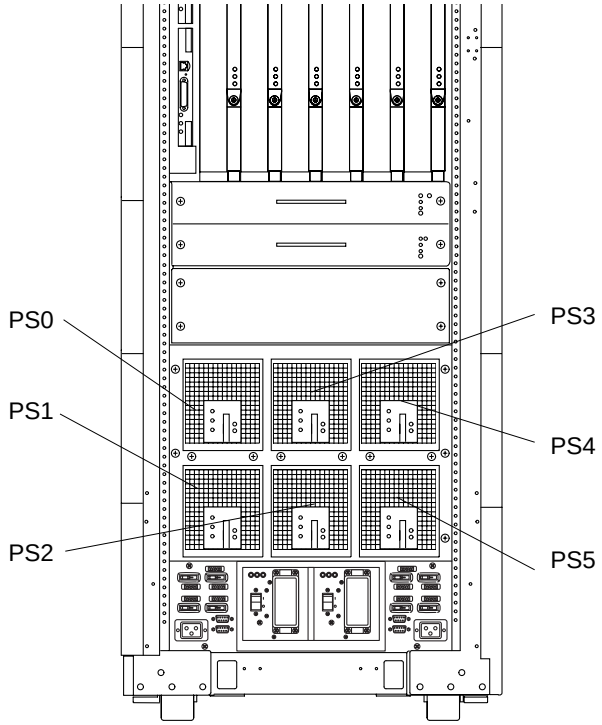


FIGURE 8-1 Power Supply Locations—Sun Fire 6800 System—Front View

The Sun Fire 6800 system has two power grids, grid 0 and grid 1. For the Sun Fire 6800 system, power supplies PS0, PS1, and PS2 are assigned to power grid 0 and power supplies PS3, PS4, and PS5 are assigned to power grid 1.

FIGURE 8-2 illustrates the power supplies in power grid 0 and power grid 1.

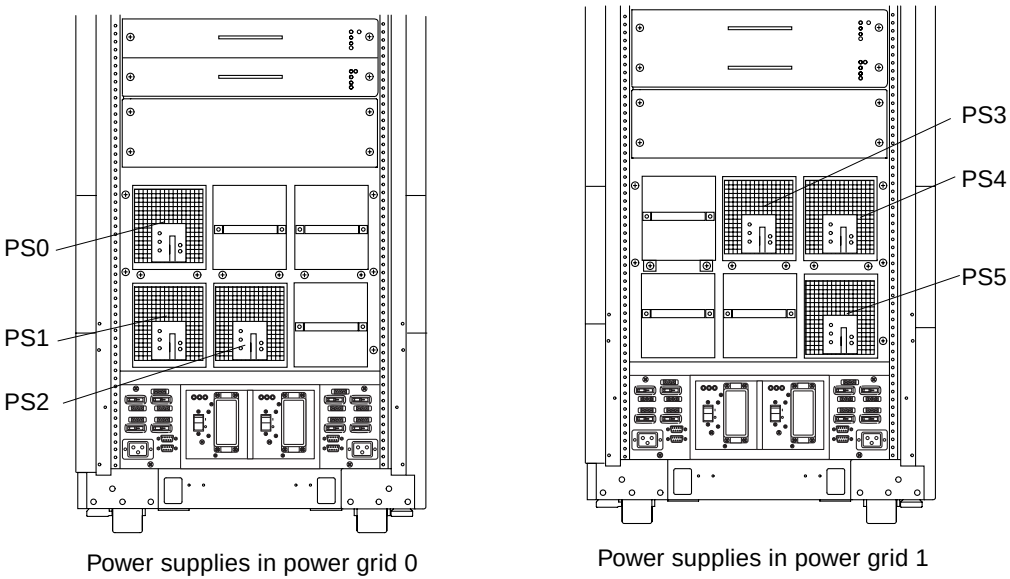


FIGURE 8-2 Power Supplies in Power Grid 0 and Power Grid 1—Sun Fire 6800 System

In the Sun Fire 4800 and Sun Fire 4810 systems, install the right and left power supplies before installing the middle power supply. Install the power supplies in this order: PS0, PS2, and PS1.

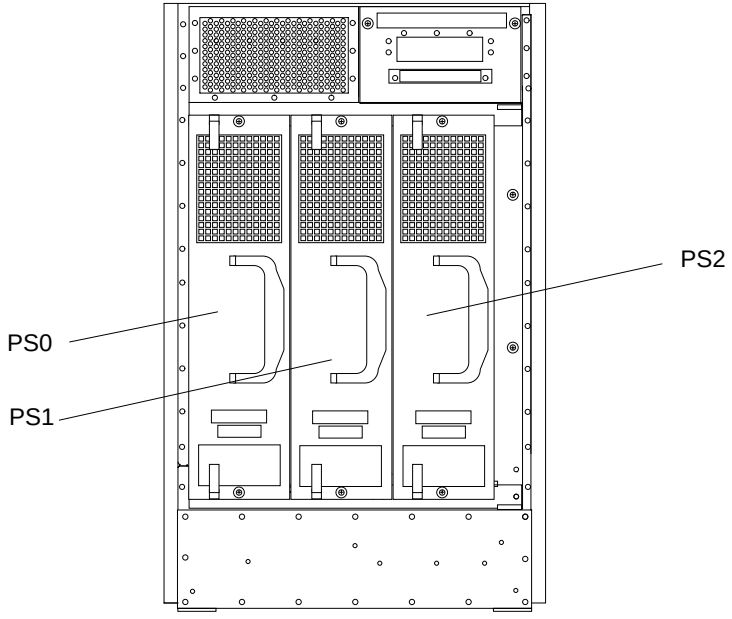


FIGURE 8-3 Power Supply Locations—Sun Fire 4800 System—Front View

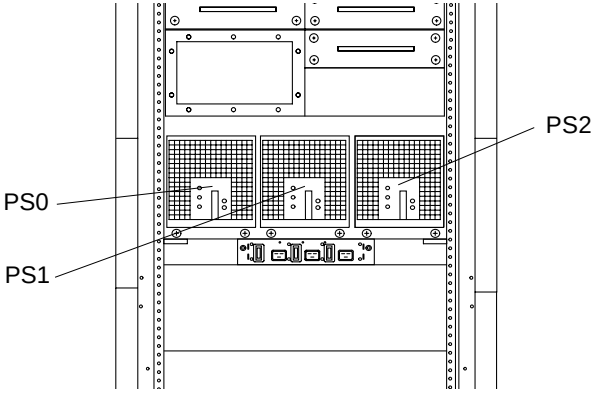


FIGURE 8-4 Power Supply Locations—Sun Fire 4810 System—Front View

In the Sun Fire 3800 system, install the middle power supply first. Then install the left power supply. And finally, install the right power supply. Install the power supplies in this order: PS1, PS2, and PS0.

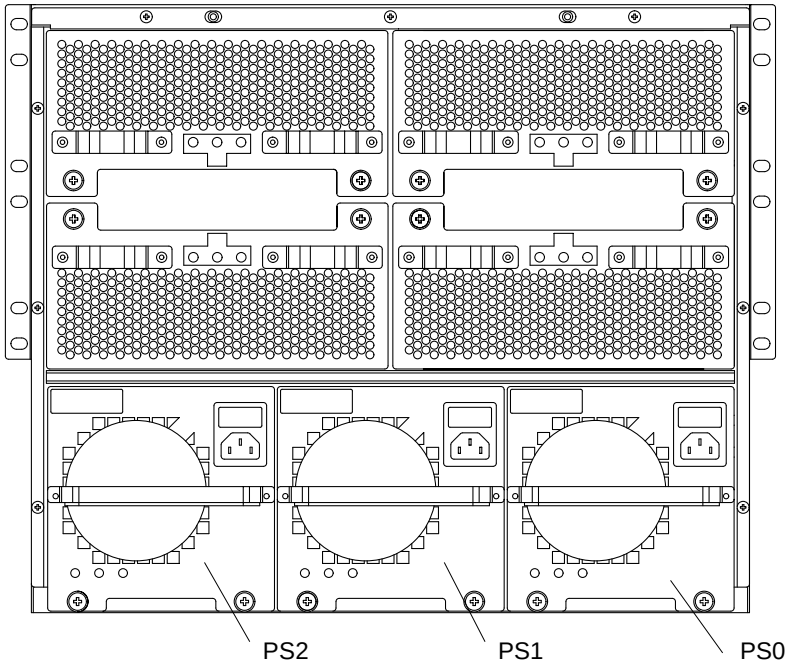


FIGURE 8-5 Power Supply Locations—Sun Fire 3800 System—Front View

8.1.2 Power Supply LEDs

There are three LEDs on each power supply. TABLE 8-3 notes the LED functions.

TABLE 8-3 Power Supply LED Functions

LED Name and Location	On	Off
Activated LED (green)	Power supply activated and operating normally	Power supply deactivated
Fault LED (yellow)	Internal fault	No internal fault
OK to remove LED (amber)	Power supply can be removed	Power supply cannot be removed

8.1.3 Replacing a Sun Fire 6800/4810 System Power Supply

8.1.3.1 Removing a Sun Fire 6800 or Sun Fire 4810 System Power Supply

1. **Power off the appropriate power supply.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the power supply.

2. **Have a power supply filler panel or replacement power supply available.**

3. **Loosen the two captive screws (**FIGURE 8-6**).**

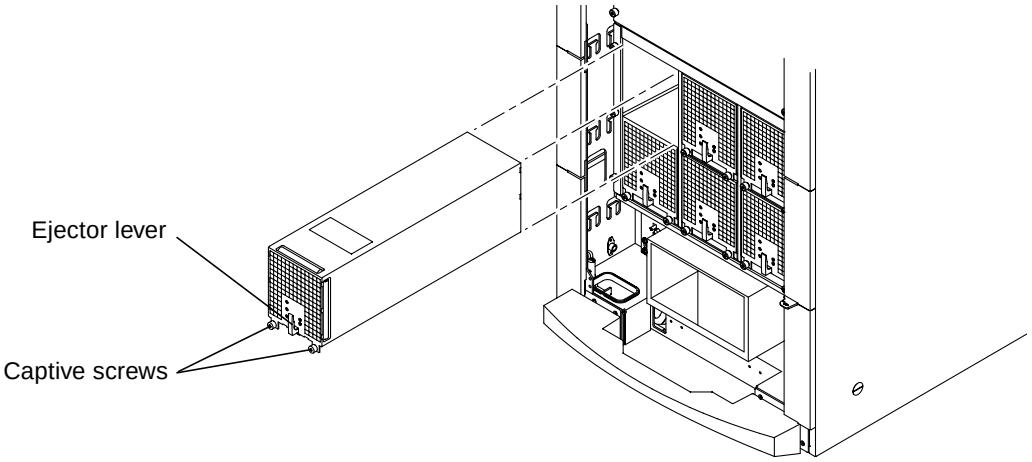


FIGURE 8-6 Removing or Replacing a Power Supply—Sun Fire 6800 System

4. **Unlock the ejector by pulling the ejector down.**
5. **Slide the power supply out.**
6. **Install a power supply filler panel to cover the empty slot. Tighten the captive screws.**

8.1.3.2 Installing a Sun Fire 6800 or Sun Fire 4810 System Power Supply

1. **Remove the power supply filler panel.**
2. **Slide the power supply into the slot (**FIGURE 8-6**).**
3. **Lock the ejector by pushing the ejector up.**
4. **Tighten the two captive screws.**

Note – Install power supply filler panels to cover any empty slots.

---

5. **Make sure that the appropriate power switch on the AC input box for the new power supply is on.**
6. **Make sure the green Activated LED is lit.**

   If the green Activated LED is not lit:

- Check to see if the power supply is seated properly.
- Make sure that the power supply is turned on.

8.1.4 Replacing a Sun Fire 4800 System Power Supply

8.1.4.1 Removing a Sun Fire 4800 System Power Supply

1. **Power off the appropriate power supply.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.

2. **Have a power supply filler panel available.**

3. **Loosen the two captive screws, one on the top of the power supply and one on the bottom of the power supply (**FIGURE 8-7**).**

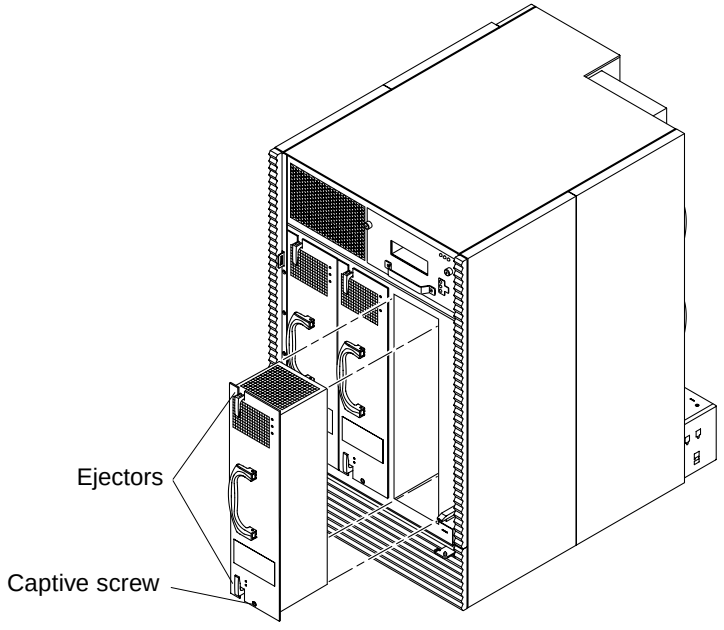


FIGURE 8-7 Removing or Replacing a Power Supply—Sun Fire 4800 System

4. **Unlock the ejectors by pushing the ejectors outward.**

5. **Slide the power supply out.**

6. **Install a power supply filler panel to cover the empty slot.**

8.1.4.2 Installing a Sun Fire 4800 System Power Supply

1. **Remove the power supply filler panel.**
2. **Remove the protective cover from the power supply connector.**
3. **Hold the power supply vertically, with one hand gripping the bottom of the unit, and the other hand gripping the handle, (**FIGURE 8-7**) slide the power supply into the chassis until it stops.**
4. **Lock the ejectors by pushing them inward.**
5. **Tighten the two captive screws.**
6. **Make sure that the appropriate power switch on the AC input box for the new power supply is on.**
7. **Make sure the green Activated LED is lit.**

   If the green Activated LED is not lit:

   - Check to see if the power supply is seated properly.
   - Make sure that the power supply is turned on.

8.1.5 Replacing a Sun Fire 3800 System Power Supply

8.1.5.1 Removing a Sun Fire 3800 System Power Supply

1. **Power off the appropriate power supply.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the desired power supply.
2. **Have a power supply filler panel available.**
3. **Loosen the power cable lock strap, and disconnect the power cable from the power supply.**
4. **Loosen the two captive screws (**FIGURE 8-8**).**
5. **Holding the power supply handle, slide the power supply partially out of the system.**

Caution – Do not remove the power supply completely from the system while only holding the handle of the power supply.

6. **Holding the power supply with both hands, slide the power supply completely out of the system.**

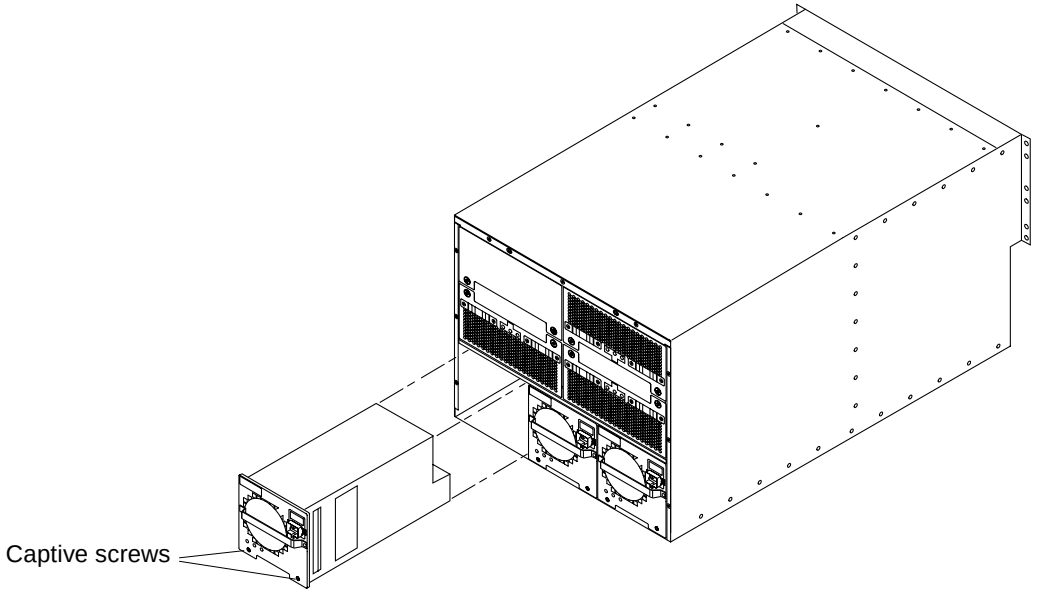


FIGURE 8-8 Removing or Replacing a Power Supply—Sun Fire 3800 System

7. **Install a power supply filler panel to cover the empty slot. Tighten the captive screws.**

8.1.5.2 Installing a Sun Fire 3800 System Power Supply

1. **Remove the power supply filler panel.**
2. **Remove the protective cover from the output connector.**
3. **Holding the power supply handle with one hand on the handle and the other hand supporting the base, slide the power supply completely into the system until it is fully engaged.**
4. **Tighten the two captive screws.**
5. **Connect the power cable to the power supply, and secure it with the power cable lock strap.**
6. **Toggle the power supply switch to on.**
7. **Make sure the green Activated LED is lit.**

   If the green Activated LED is not lit:

   - Check to see if the power supply is seated properly.
   - Make sure that the power supply is turned on.

8.2 AC Input Box

There are two AC input box types. The single input type AC input box is in the Sun Fire 6800 system (FIGURE 8-9), and the multiple input type AC input box is in the Sun Fire 4810 and Sun Fire 4800 systems. The Sun Fire 3800 system does not have an AC input box. For the location of the AC input box(es), see FIGURE 8-10 on page 8-13, FIGURE 8-11 on page 8-13, and FIGURE 8-12 on page 8-14.

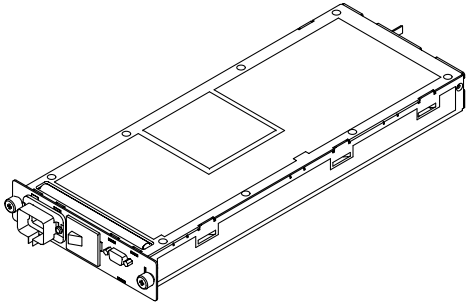


FIGURE 8-9 AC Input Box—Sun Fire 6800 System

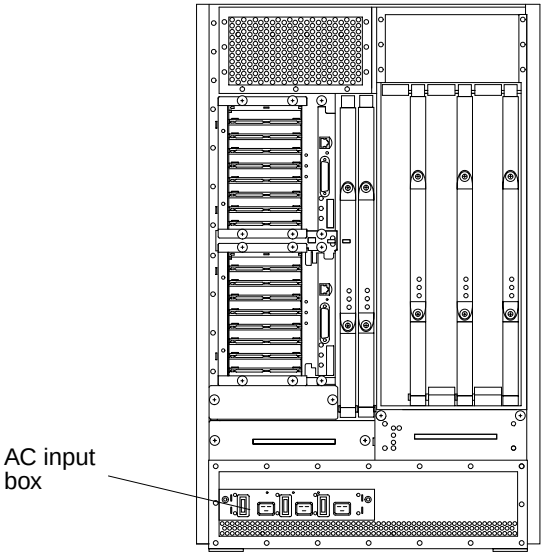


FIGURE 8-10 AC Input Box—Sun Fire 4800 System

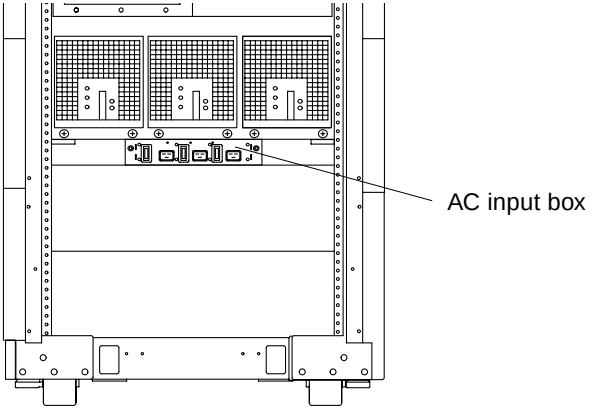


FIGURE 8-11 AC Input Box—Sun Fire 4810 System

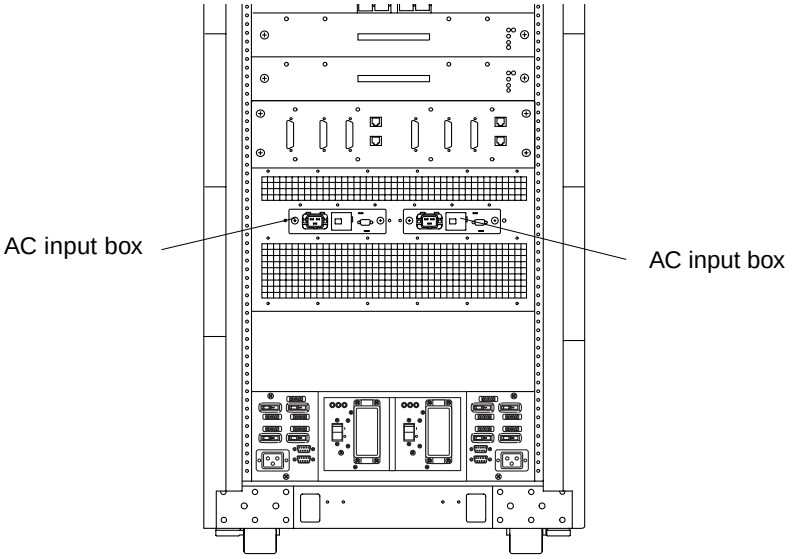


FIGURE 8-12 AC Input Boxes—Sun Fire 6800 System—Rear View

8.2.1 Replacing the AC Input Box

8.2.1.1 Removing the AC Input Box

1. **Power off the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.

2. **Loosen the power cord lock.**

3. **Disconnect the power cord.**

Caution – Disconnecting the power cord removes system ground.

4. **Loosen the two captive screws on the AC input box (**FIGURE 8-13**).**

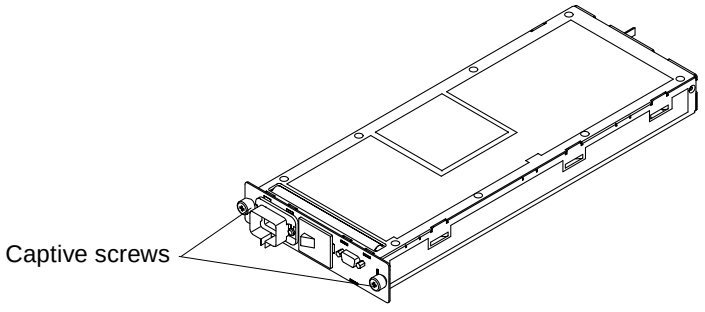


FIGURE 8-13 Two Captive Screws on the AC Input Box—Sun Fire 6800 System

5. **Slide the AC input box out of the chassis (**FIGURE 8-14**).**

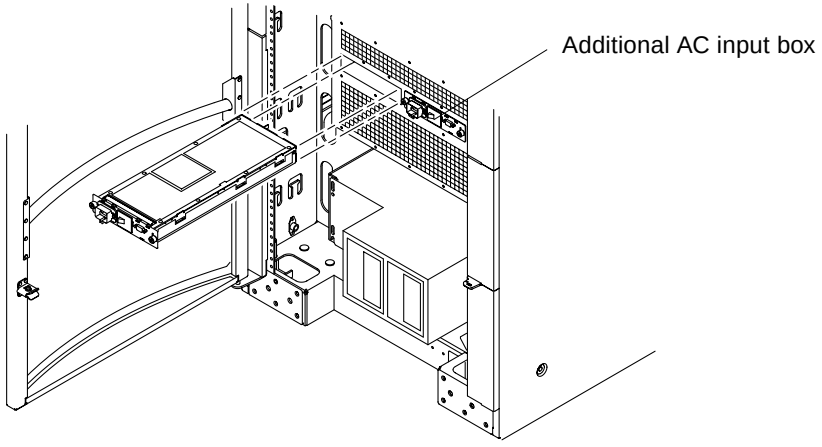


FIGURE 8-14 Removing the AC Input Box—Sun Fire 6800 System

8.2.1.2 Installing the AC Input Box

1. **Slide the AC input box into the system.**
2. **Tighten the two captive screws.**
3. **Connect the power cord to the AC input box.**

4. **Power on the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the system.

8.3 Redundant Transfer Unit (RTU) and Redundant Transfer Switch (RTS)

The Sun Fire 6800 system has two RTUs. Each RTU contains two RTS modules. The primary configuration is the left RTS module with the right RTS module as secondary for redundancy. The RTUs function as power sequencers.

Each RTS module within an RTU is connected to a separate power source.

Each RTS module has three LEDs (FIGURE 8-15 and TABLE 8-4).

The unswitched outlet on each side of the RTU is active only if an RTS is installed on the same side. If only one RTS is installed, the unswitched outlet on the same side will have power and the unswitched outlet on the other side will not have power. These outlets are normally reserved to power the system cabinet fan trays at the top of the cabinet. If only one RTS is installed then one fan tray must be powered by an unswitched outlet and the other fan tray by a switched outlet (FIGURE 8-15).

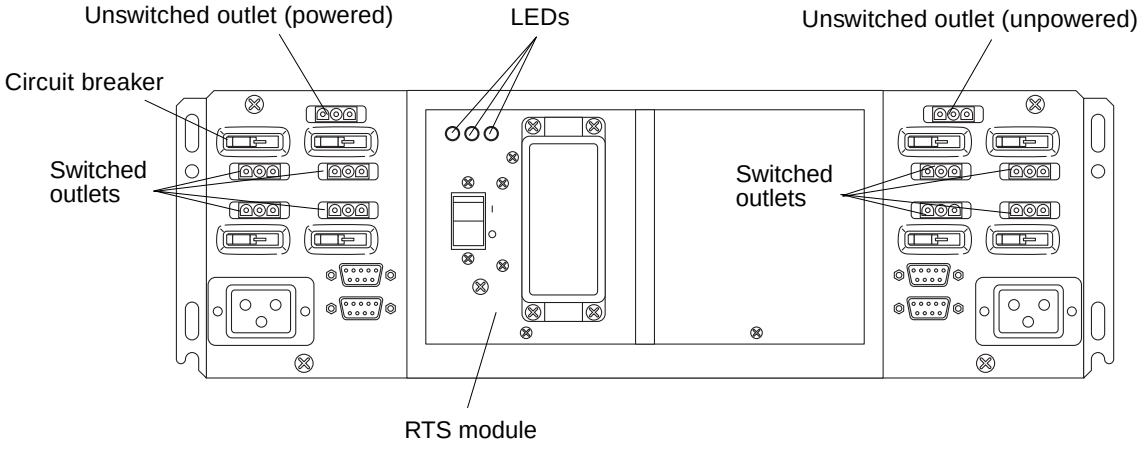


FIGURE 8-15 RTU and RTS Modules

TABLE 8-4 describes the LED functions.

TABLE 8-4 LED Functions

LED Position]	Color	Status	Meaning
Left	Green	On	The source is present and is within specifications.
		Off	The source either is not present or is below specifications.
		Flashing	The source is above specifications.
Middle	Green	On	The module relay is energized and the module is connected to the outlets.
		Off	The module relay is de-energized and the module is docked.
		Flashing	The module relay is de-energized and the module is undocked.
Right	Amber	On	The module has a fault.
		Off	The module does not have a fault.

During a self-test when you power on the system, the LEDs function as described in TABLE 8-5.

TABLE 8-5 Self-Test LED Functions

LEDs Flashing	Pattern	Meaning
All	Three times	Self-test is complete
All	Right, middle, left	LED test is complete
Middle	Flashing for three seconds	Docking test in progress

FIGURE 8-16 and FIGURE 8-17 show the location and numbering of the RTS modules.

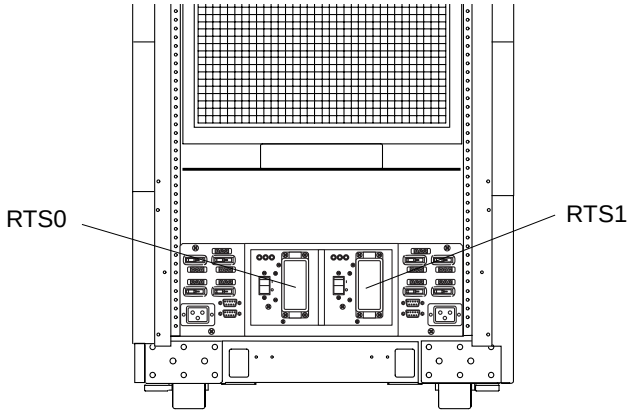


FIGURE 8-16 RTS Modules—Sun Fire 4810 System—Rear View

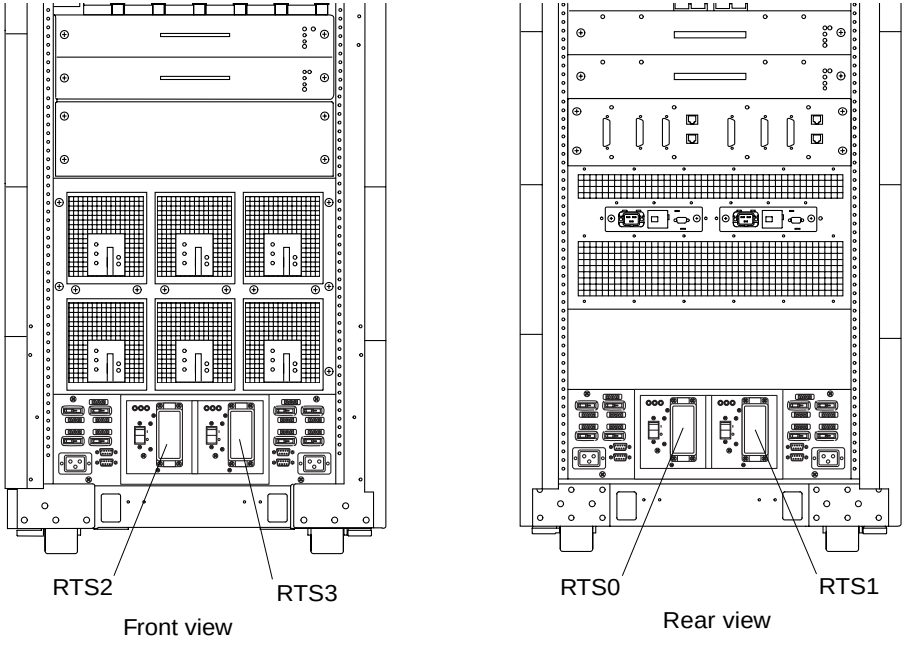


FIGURE 8-17 RTS Modules—Sun Fire 6800 System

8.3.1 Replacing the RTS Modules

1. **Power off the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.

2. **Power off the wall circuit breaker connected to the RTS module that is to be replaced.**

3. **Power off the RTS module that is to be replaced (**FIGURE 8-18**).**

4. **Remove the power cord from the RTS module that is to be replaced.**

5. **Loosen the screw on the bottom of the RTS module.**

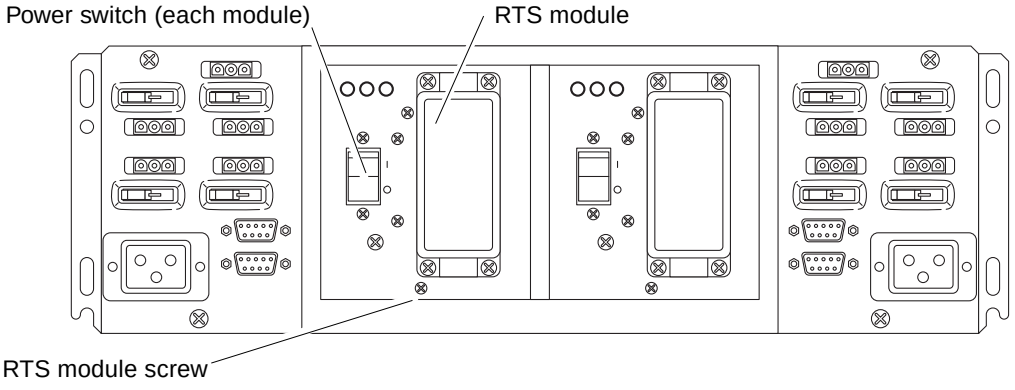


FIGURE 8-18 RTU Assembly

6. **Pull the module straight out.**

7. **Install the replacement unit by reversing Step 1 through Step 6.**

   Ensure proper engagement of the connector in the rear of the module when inserting the replacement module into the RTU.

8.3.2 Replacing the RTU Assembly

1. **Notify users that the system will be powered off.**

2. **Power off the system.**

3. **Power off the wall circuit breaker connected to the RTS module(s) that are to be removed.**

4. **Label and remove all cabling.**

5. **Remove the RTS module(s), see previous section.**

Note – Do not attempt to remove the RTU without first removing the RTS modules.

---

6. **Remove the four screws holding the RTU to the cabinet (**FIGURE 8-18**).**

7. **Firmly pull out the RTU.**

8. **Install the replacement RTU Assembly by reversing Step 1 through Step 6.**
   The assembly is self-aligning.

CHAPTER 9

Fan Trays

This chapter describes how to remove and replace fan trays. To protect both yourself and the equipment, make sure you follow the safety precautions in Chapter 1.

This chapter contains the following sections:

- Section 9.1 “Fan Tray Slot Numbering” on page 9-2
- Section 9.2 “Fan Tray LEDs” on page 9-5
- Section 9.3 “Replacing Fan Trays in Sun Fire 6800/4810/4800 Systems” on page 9-5
- Section 9.4 “Replacing Fan Trays in a Sun Fire 3800 System” on page 9-7
- Section 9.5 “Cabinet Fan Trays” on page 9-9

All systems have multiple fan trays that provide redundant cooling if one fan tray fails. The Sun Fire 6800 system has four fan trays that collectively cool the system. The Sun Fire 4810 and Sun Fire 4800 systems have three fan trays that also collectively cool the system. The Sun Fire 3800 system has four fan trays in the rear of the system that provide front-to-back cooling. The power supplies of all the systems have their own fans for internal cooling. The Sun Fire 6800 system and the Sun Fire cabinet also have two fan trays mounted on top of the cabinets.

9.1 Fan Tray Slot Numbering

TABLE 9-1 lists the fan trays, their slot numbers, and identifies the redundant fan tray for each system.

TABLE 9-1 Fan Trays and Their Slot Numbers

System	Fan Tray	Location
Sun Fire 6800 system	FT0	Rear
	FT1	Front
	FT2	Rear
	FT3	Front (redundant)
Sun Fire 4810 system	FT0	Rear
	FT1	Rear (redundant)
	FT2	Front
Sun Fire 4800 system	FT0	Rear (redundant)
	FT1	Front
	FT2	Rear
Sun Fire 3800 system	FT0	Rear (redundant)
	FT1	Rear
	FT2	Rear
	FT3	Rear

FIGURE 9-1, FIGURE 9-2, FIGURE 9-3, and FIGURE 9-4 illustrate the locations of the fan trays in each system.

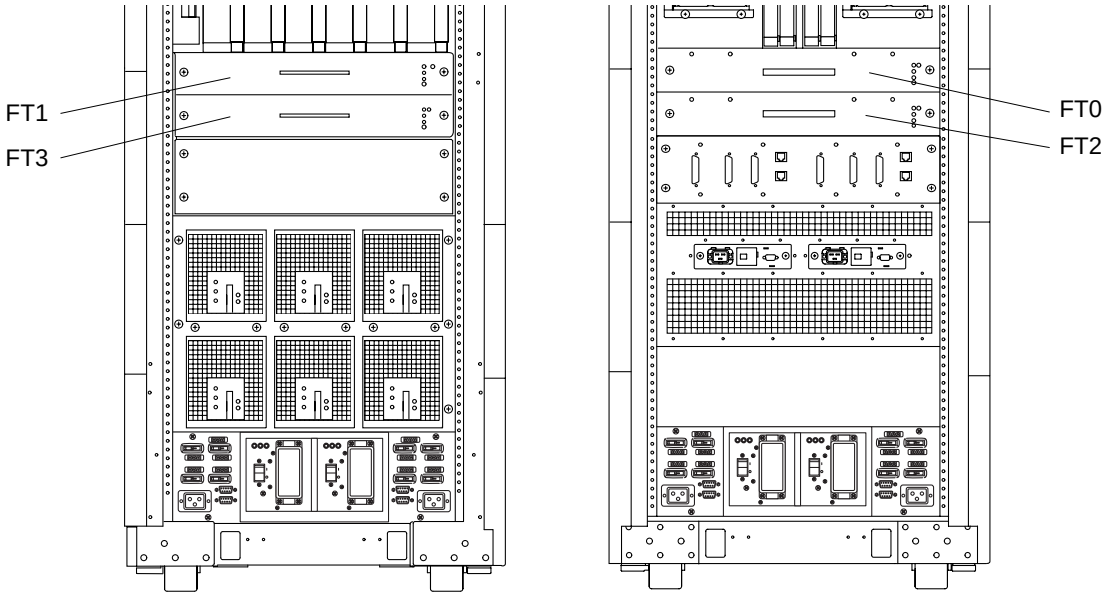


FIGURE 9-1 Front and Rear Fan Trays—Sun Fire 6800 System

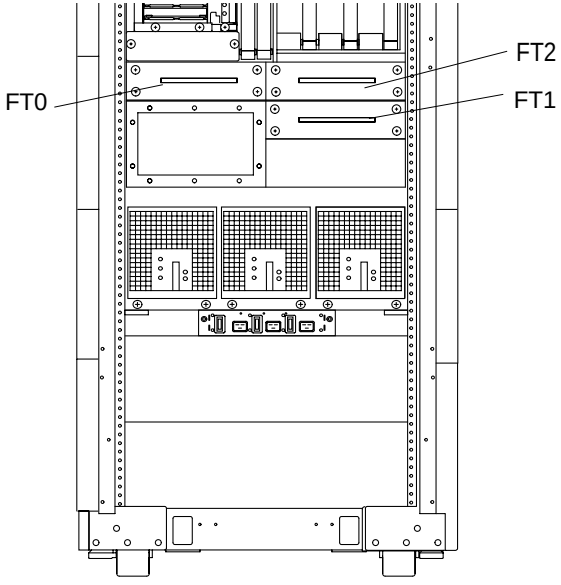


FIGURE 9-2 Fan Trays—Sun Fire 4810 System

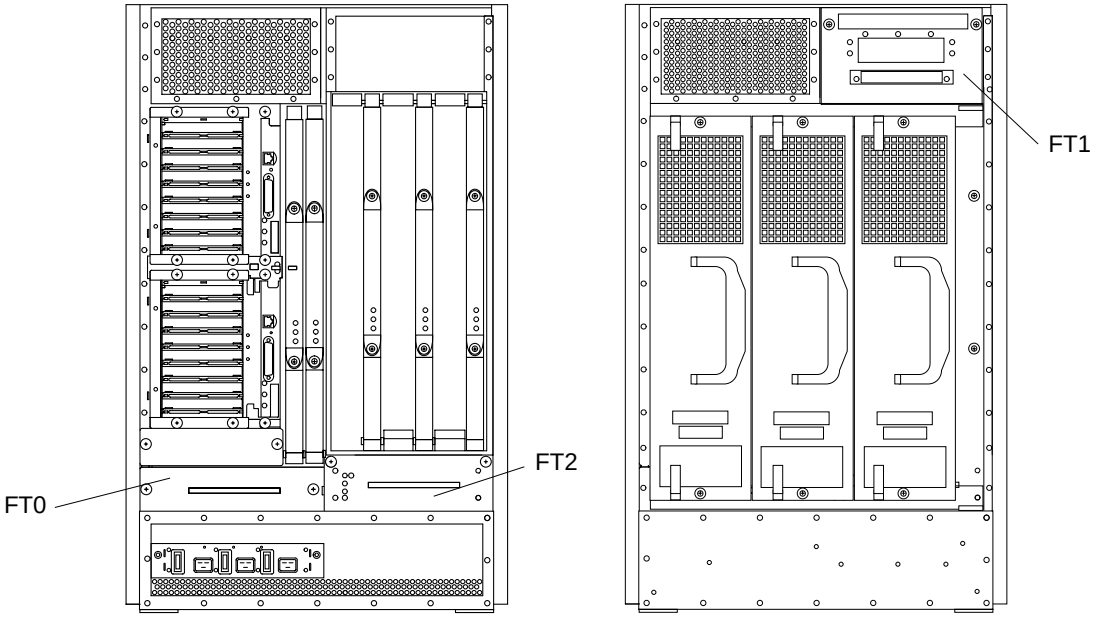


FIGURE 9-3 Fan Trays—Sun Fire 4800 System

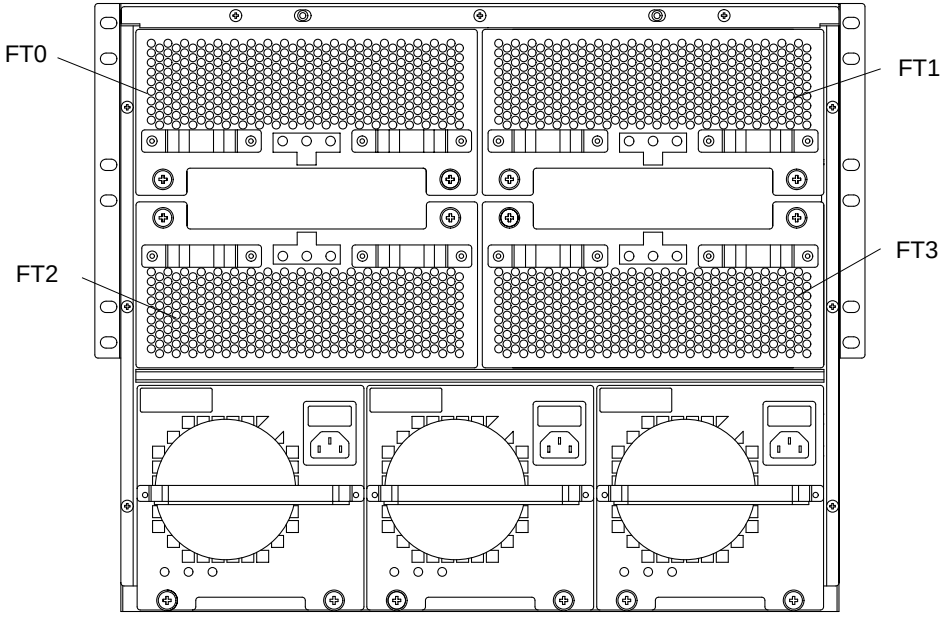


FIGURE 9-4 Fan Trays—Sun Fire 3800 System

9.2 Fan Tray LEDs

There are three LEDs on each fan tray. TABLE 9-2 describes the LED functions.

TABLE 9-2 Fan Tray LED Functions

LED	On	Off
Activated LED (green)	Device is activated; you cannot remove the fan tray when this LED is on.	Device is deactivated; you can remove the fan tray when this LED is off.
Fault LED (amber)	Internal fault.	No internal fault.
OK to remove LED (amber)	Device is deactivated; you can remove the fan tray when this LED is on.	Device is activated; you cannot remove the fan tray when this LED is off.

9.3 Replacing Fan Trays in Sun Fire 6800 / 4810 / 4800 Systems

9.3.1 Removing a Fan Tray

Caution – Within one minute of removing the fan tray, install a filler panel to prevent the system from overheating.

1. **Make sure you have a replacement fan tray or filler panel available.**
2. **Power off the fan tray.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the fan tray.
3. **If you are removing the top fan tray, FT1, from a Sun Fire 4800 system, remove the bezel by snapping it off.**
4. **Loosen the captive screws.**

5. **Slide the fan tray out (**FIGURE 9-5**).**
6. **Install a filler panel.**
7. **Tighten the captive screws.**

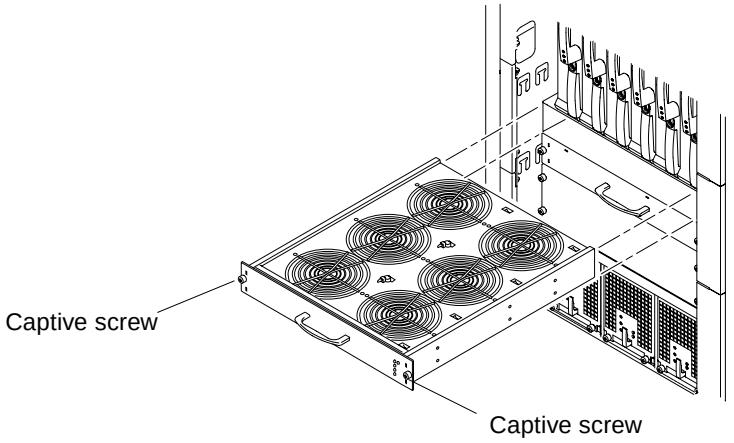


FIGURE 9-5 Removing or Replacing a Front Fan Tray—Sun Fire 6800 System

9.3.2 Installing a Fan Tray

Caution – Within one minute of removing the filler panel, install a fan tray to prevent the system from overheating.

1. **Loosen the captive screws on the filler panel.**
2. **Remove the filler panel and save it.**
3. **Slide the replacement fan tray into the slot.**
4. **Tighten the captive screws.**
5. **If you are installing the top fan tray, FT1, into a Sun Fire 4800 system, replace the bezel by snapping it on.**
6. **Power on the fan tray.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the fan tray.

9.4 Replacing Fan Trays in a Sun Fire 3800 System

9.4.1 Removing a Fan Tray

Caution – Within one minute of removing the fan tray, install a filler panel to prevent the system from overheating.

1. **Make sure you have a replacement fan tray or filler panel available.**
2. **Power off the fan tray.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the fan tray.
3. **Loosen the two captive screws.**
4. **Slide the fan tray out.**

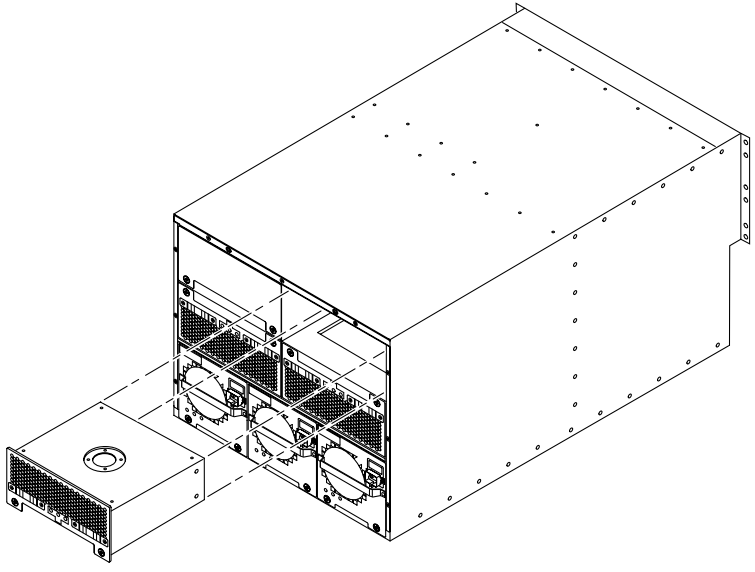


FIGURE 9-6 Removing or Replacing a Fan Tray—Sun Fire 3800 System

5. **Install a filler panel.**

6. **Tighten the captive screws.**

9.4.2 Installing a Fan Tray

Caution – Within one minute of removing the filler panel, install a fan tray to prevent the system from overheating.

1. **Loosen the captive screws on the filler panel.**

2. **Remove the filler panel and save it.**

3. **Slide the fan tray into the slot.**

   - Install the two bottom fan trays, FT2 and FT3, with the captive screws on top.
   - Install the top two fan trays, FT0 and FT1, with the captive screws on the bottom.

   The default configuration is three fan trays installed in the order shown in TABLE 9-3.

TABLE 9-3 Default Fan Tray Configuration

Top Left	Top Right	Bottom Left	Bottom Right
Filler panel, FT0	Fan tray, FT1	Fan tray, FT2	Fan tray, FT3

4. **Tighten the two captive screws.**

5. **Power on the fan tray.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the fan tray.

9.5 Cabinet Fan Trays

Two fan trays provide additional cooling for the Sun Fire 6800 system. Both are located on the cabinet top immediately behind the FrameManager (FIGURE 9-7).

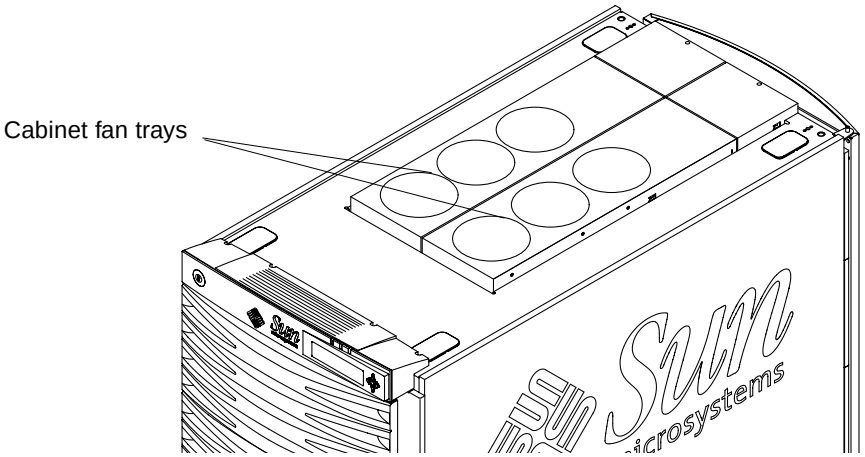


FIGURE 9-7 Cabinet Fan Trays

Note – Each RTU has two “unswitched” power outlets (the topmost outlets on each side of the RTU). By default these unswitched outlets provide power to the fan trays. If for some reason a cabinet has only one RTS installed, then only the associated unswitched outlet will have power and the remaining fan tray must be connected to one of the “switched” power outlets.

9.5.1 Replacing the Cabinet Fan Trays

1. **Ensure that the power switch is set to off (**FIGURE 9-8**).**

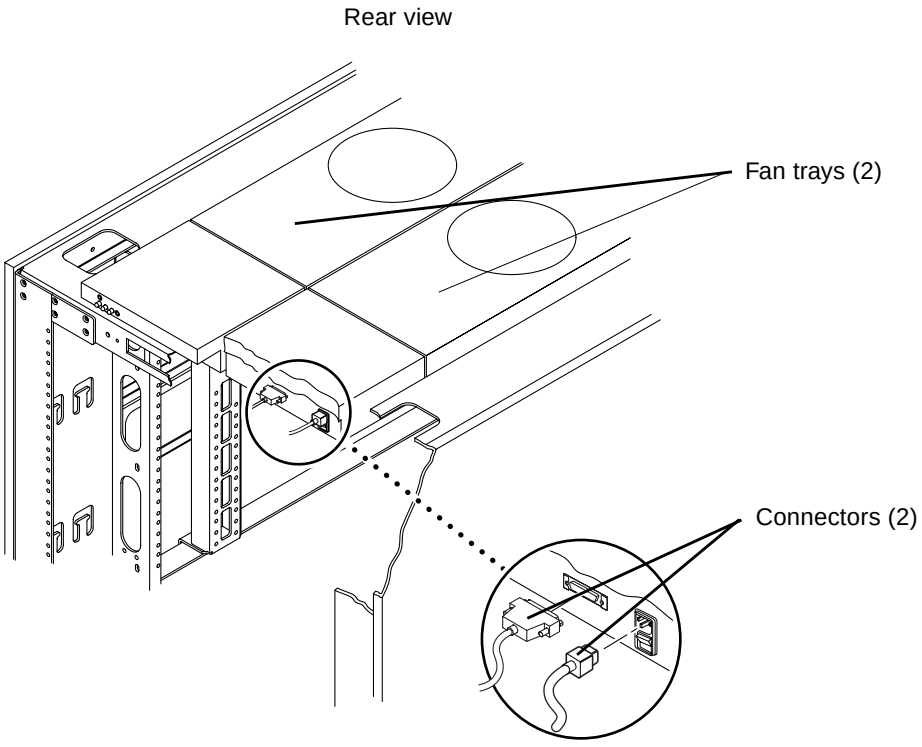


FIGURE 9-8 Cabinet Fan Tray Power Switch and Connectors

2. **Open the rear door for easier access.**
3. **Disconnect and then remove the two connectors from the rear of the fan tray (**FIGURE 9-8**).**
4. **Loosen and then remove the two screws from the fan assembly top plate (**FIGURE 9-9**).**

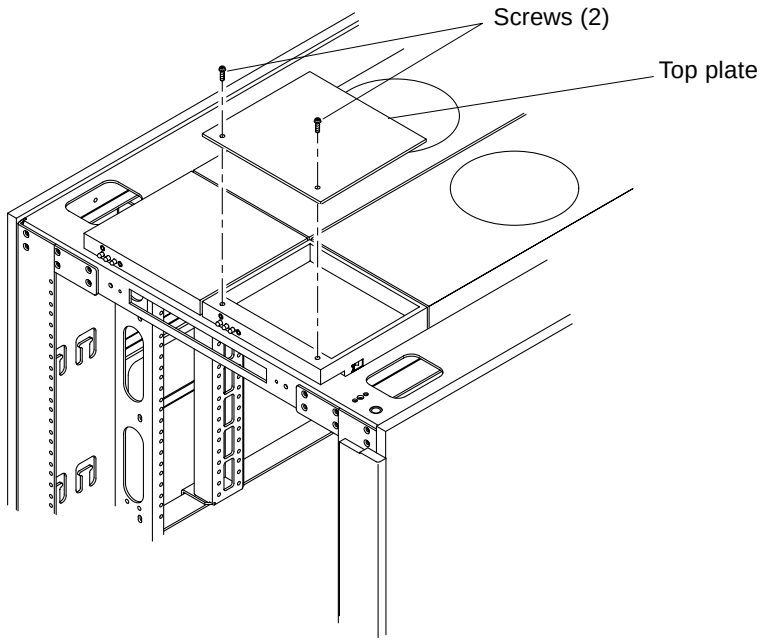


FIGURE 9-9 Cabinet Fan Tray Top Plate

5. **Remove the fan assembly top plate.**

   This will reveal two captive screws.

6. **Loosen the two captive screws.**

7. **Remove the fan tray assembly by supporting the fan tray with one hand while raising the end containing the connectors and then pulling slightly forward.**

8. **Install the replacement unit by reversing Step 1 through Step 7.**

CHAPTER 10

Centerplane and ID Source Boards

This chapter describes how to replace the centerplanes in the following Sun Fire 6800/4810/4800/3800 systems.

Also described is how to replace the ID Source board from the these systems

- Section 10.1 “Replacing Centerplanes in a Sun Fire 6800 System” on page 10-1
- Section 10.2 “Replacing the Centerplanes in a Sun Fire 4810 System” on page 10-13
- Section 10.3 “Replacing the Centerplane in a Sun Fire 4800 System” on page 10-19
- Section 10.4 “Replacing the Centerplane in a Sun Fire 3800 System” on page 10-29
- Section 10.5 “Replacing the Sun Fire 3800 System LED Board” on page 10-40
- Section 10.6 “Replacing ID Source Boards” on page 10-43

The Sun Fire 3800 system does not have an ID Source board.

To protect both yourself and the equipment, make sure you follow the precautions in Chapter 1 “Safety and Tools Requirements.”

10.1 Replacing Centerplanes in a Sun Fire 6800 System

The Sun Fire 6800 system has three centerplanes that can be removed separately. These procedures require adequate front and rear access.

Note – A grounding wrist strap must be available from both the front and the rear of the system.

10.1.1 Removing the System Centerplane

1. **Halt the Solaris operating environment in each domain and power off the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.

2. **Remove the front and rear doors by lifting the door panels off the hinges (**FIGURE 10-1**).**

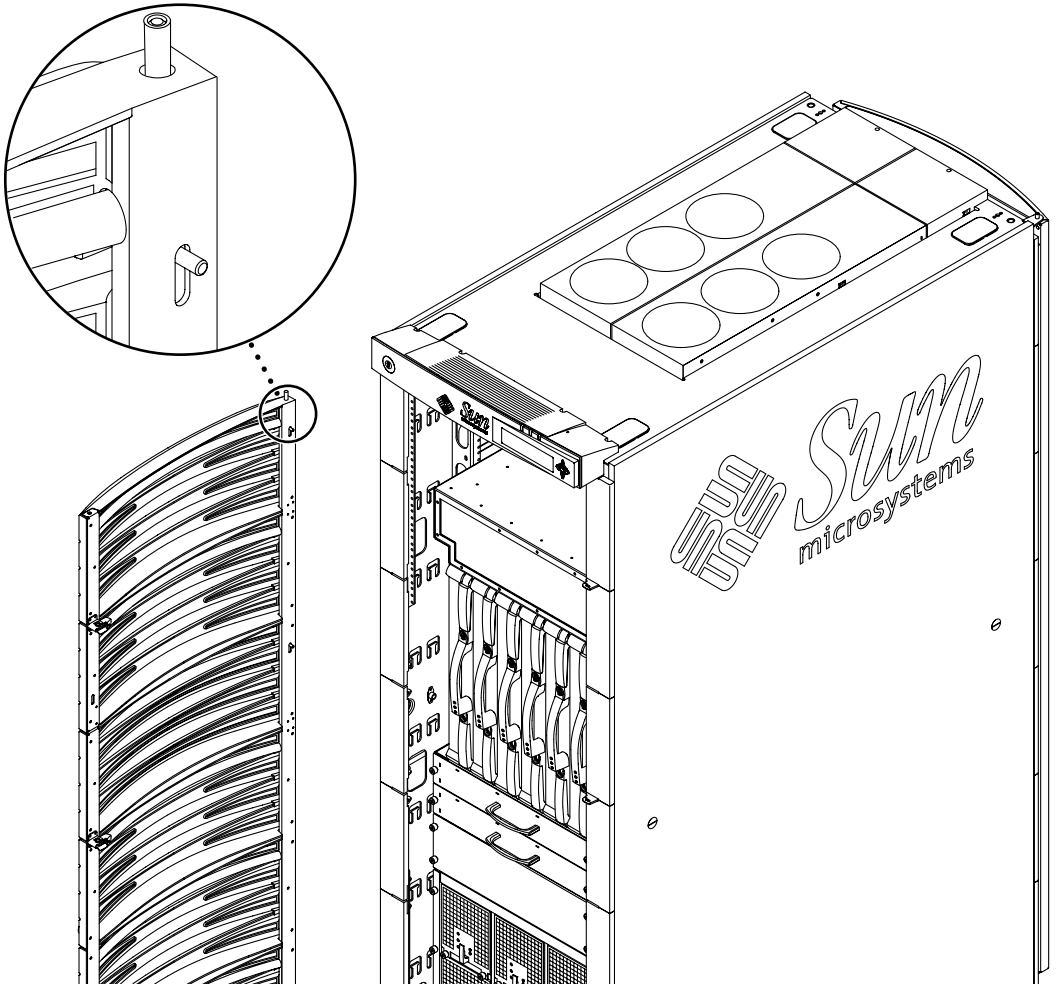


FIGURE 10-1 Removing the Door—Sun Fire 6800 System

3. **Disconnect all I/O cables.**

4. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap. Place a grounded ESD mat close to the system.**

5. **Remove all CPU/Memory boards, Repeater boards, I/O assemblies, System Controller boards, and filler boards or filler panels from the front and rear of the system (**FIGURE 10-2**).**

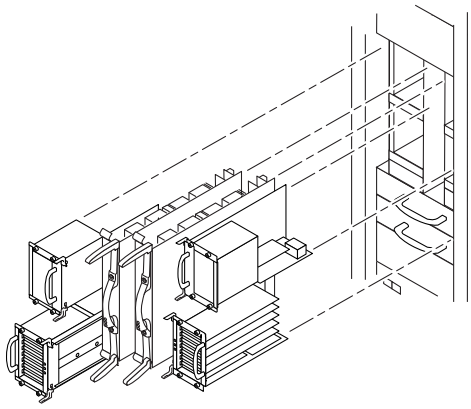


FIGURE 10-2 Removing All Components From the Front of the Sun Fire 6800 System

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Note – Do not remove the ID Source board from the centerplane.

---

6. **Remove the bus bar access panels at the rear of the system.**

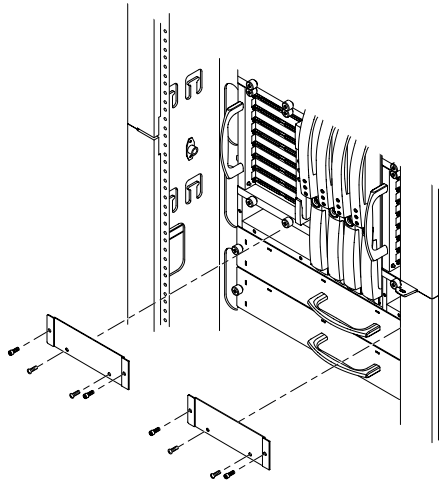

FIGURE 10-3 Removing the Bus Bar Access Panels

7. **Loosen the upper-right and upper-left bus bar captive screws, by reaching through the access area (**FIGURE 10-4**).**

   There are four captive screws at each location.

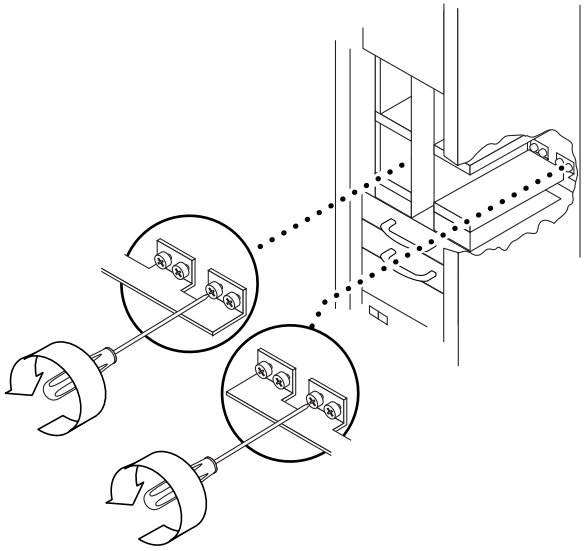

FIGURE 10-4 Loosening the Bus Bar Captive Screws—Sun Fire 6800 System

8. **Disconnect the two cables from the system centerplane (**FIGURE 10-5**).**

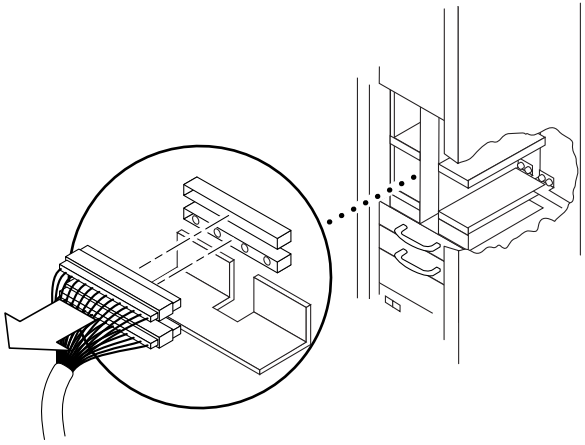

FIGURE 10-5 Disconnecting the Two Cables From the System Centerplane—Sun Fire 6800 System

9. **At the front of the system, remove the 19 screws securing the centerplane to the chassis (**FIGURE 10-6**).**

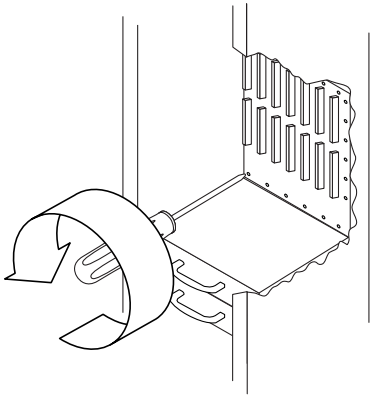

FIGURE 10-6 Removing the Screws Securing the System Centerplane—Sun Fire 6800 System

10. **Move the centerplane forward off the guide pins (**FIGURE 10-7**).**

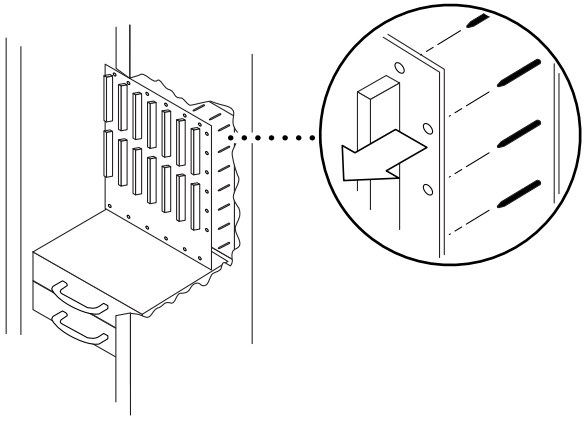

FIGURE 10-7 Moving the System Centerplane Forward Off the Guide Pins—Sun Fire 6800 System

11. **Tilt the top of the centerplane forward about 30 degrees.**

12. **Remove the centerplane (**FIGURE 10-8**) as follows:**

    a. **Rotate the right side forward about 30 degrees, and then rotate it forward and around the wall. Take care not to hit the corner.**

    b. **As soon as one side passes around the wall, tilt the top edge of the centerplane forward to allow additional clearance.**

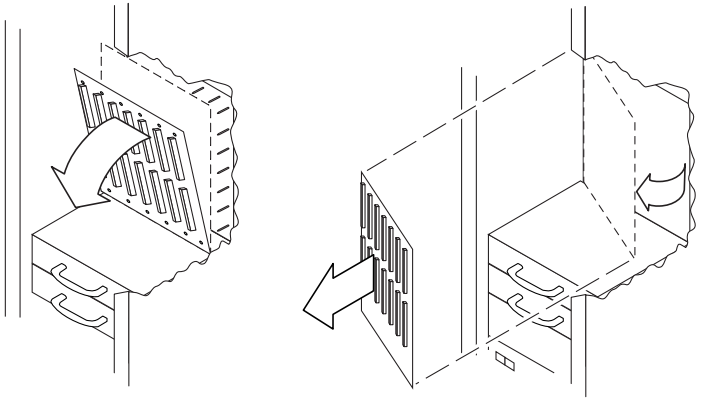

FIGURE 10-8 Removing the System Centerplane—Sun Fire 6800 System

10.1.2 Removing the Fan Centerplane

1. **Halt the Solaris operating environment in each domain, and power off the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.

2. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap. Place a grounded ESD mat close to the system.**

3. **Remove the front fan trays.**

4. **Remove the fan tray plenum panel mounted to the bottom of the centerplane mounting bracket.**

5. **Remove the rear fan trays.**

6. **Disconnect the cables to the rear fan tray centerplane (**FIGURE 10-9**).**

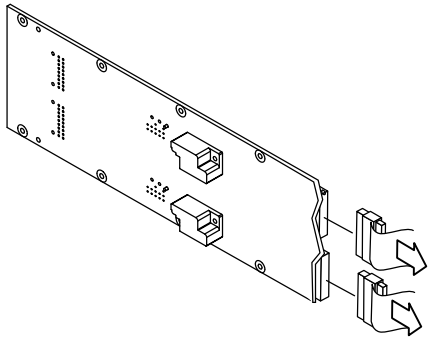

FIGURE 10-9 Disconnecting the Fan Tray Centerplane Cables

7. **Remove the 10 screws securing the fan centerplane to the system (**FIGURE 10-10**).**

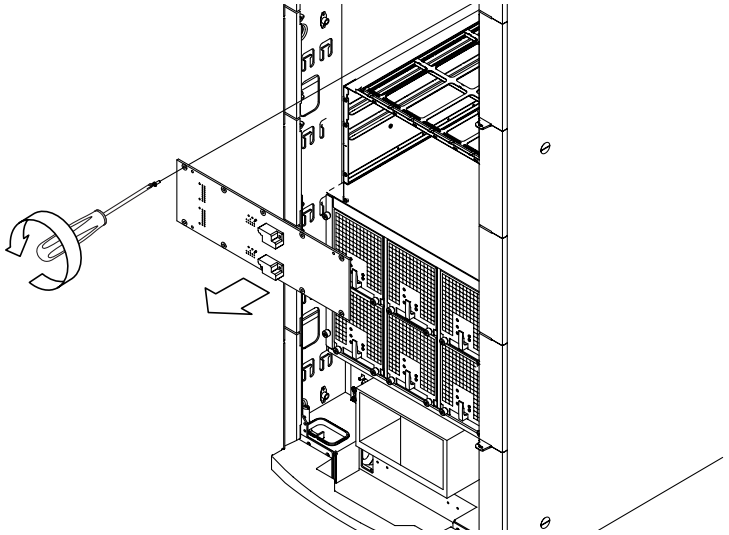

FIGURE 10-10 Removing the Screws Securing the Fan Centerplane

8. **Remove the fan centerplane.**

10.1.3 Removing the Power Centerplane

1. **Halt the Solaris operating environment in each domain and power off the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.

Caution – Use a grounding wrist strap to prevent static damage. Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap. Place a grounded ESD mat close to the system.

2. **Remove the CPU/Memory boards.**

   See Chapter 3 for information about removing CPU/Memory boards. Note the slot numbers that the boards are removed from.

3. **Remove the power supplies.**

4. **Remove the power supply subchassis.**

   This enclosure houses the power supplies.

5. **Remove the two front fan trays.**

6. **Remove the two AC input boxes from the rear of the system by loosening the captive screws and sliding the AC input boxes out of their slots.**

7. **Remove the plenum.**

8. **Disconnect the centerplane cables as follows:**

   a. **Cut the tie strap holding the power cable to the system.**

   b. **Disconnect the system cable that connects the power centerplane to the system centerplane.**

   c. **Disconnect the power cable that connects the power centerplane to the fan centerplane (**FIGURE 10-11**).**

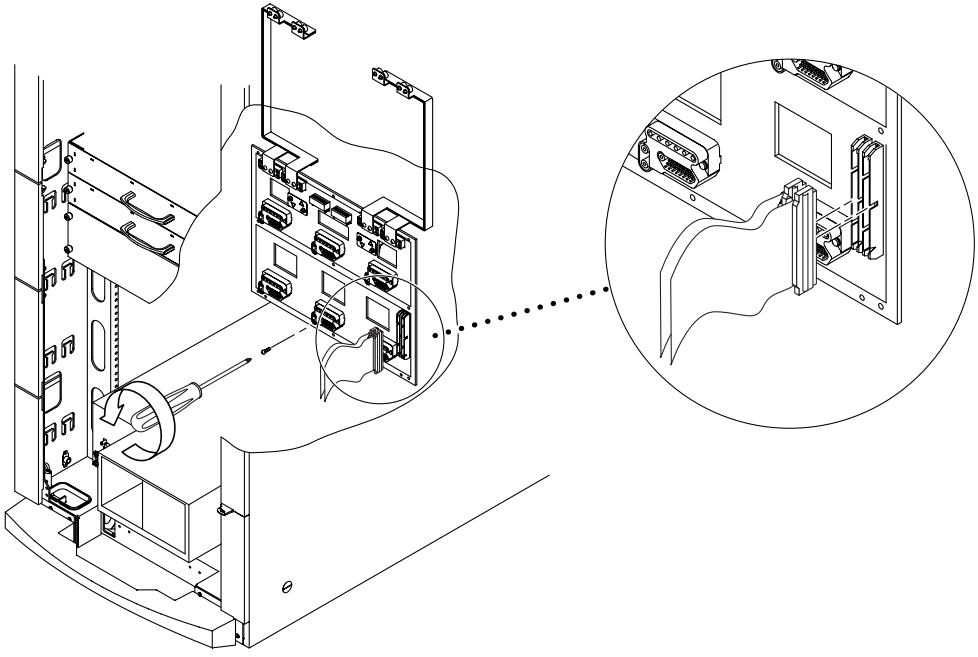

FIGURE 10-11 Centerplane Cables—Sun Fire 6800 System

9. **Remove the left and right bus bars as follows:**

   a. **From the rear of the cabinet, remove the bus bar access panels.**

   b. **With a long-handled phillips screwdriver, loosen the panel captive screws for both bus bars at the top.**

c. From the system front, remove the eight screws attaching the bus bar to the power centerplane.

There are four screws on the right and four screws on the left.

d. Remove the bus bar (FIGURE 10-12**).**

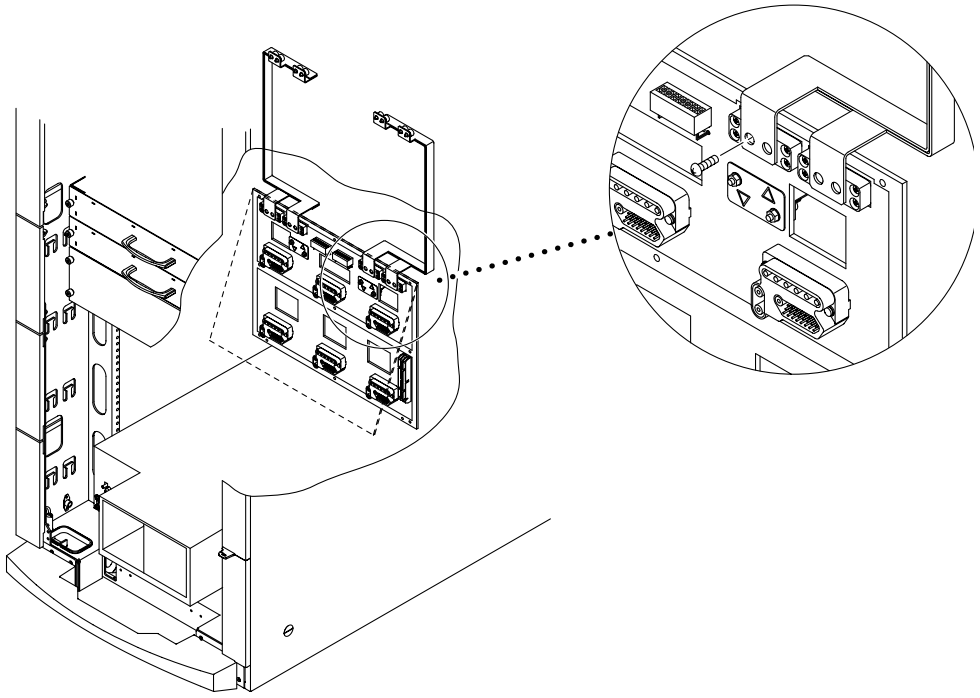

FIGURE 10-12 Disconnecting the Screws Securing the Power Centerplane Bus Bars

10. Remove the nine screws securing the centerplane to the cabinet.

11. Remove the centerplane.

10.1.4 Installing the System Centerplane

1. **Insert and align the centerplane within the chassis cabinet (**FIGURE 10-8 **on page 10-6).**
2. **At the front of the system, install the 19 screws securing the centerplane to the chassis.**
3. **Connect the system cable to the centerplane.**
4. **Fasten the upper-right and upper-left bus bar panel captive screws.**

   There are four captive screws at each location.
5. **Install the bus bar access panels.**
6. **Install all CPU boards, Repeater boards, I/O assemblies, and System Controller boards from the front and rear of the system**.

   Install filler boards or panels in all empty slots.
7. **Connect all cables.**
8. **Install the side panel behind the hinge.**
9. **Install the front and rear doors.**

10.1.5 Installing the Fan Centerplane

1. **Insert and align the centerplane within the chassis cabinet and replace the 10 screws securing the centerplane to the system chassis (**FIGURE 10-10 **on page 10-8).**
2. **Connect the fan tray cable (**FIGURE 10-9 **on page 10-7).**
3. **Install the rear fan trays.**
4. **Install the plenum and the fan tray plenum panel.**
5. **Install the front fan trays.**

10.1.6 Replacing the Power Centerplane

1. **Insert and align the power centerplane within the chassis cabinet and replace the nine screws securing the centerplane to the cabinet (**FIGURE 10-10 **on page 10-8).**
2. **Install the left and right bus bars as follows (**FIGURE 10-12 **on page 10-10):**
   a. **From the front of the system, align the bus bar and install the eight screws attaching the bus bar to the power centerplane.**

      There are four screws on the right and four screws on the left.

   b. **Install the panel fasteners for both bus bars at the top.**
   c. **From the rear of the system, install the bus bar access panels.**
3. **Connect the centerplane cables as follows (**FIGURE 10-11 **on page 10-9):**
   a. **Connect the power cable going from the power centerplane to the fan centerplane.**
   b. **Connect the system cable going from the power centerplane to the system centerplane.**
   c. **Install the tie strap that holds the power cable to the system.**
4. **Install the plenum.**
5. **Install the AC input box and fasten the captive screws.**
6. **Install the two fan trays.**
7. **Install the power supply subassembly that houses the power supplies.**
8. **Install the power supplies.**
9. **Install the CPU/Memory boards.**
10. **Power on the system.**

    Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the system.

10.2 Replacing the Centerplanes in a Sun Fire 4810 System

The Sun Fire 4810 system has two centerplanes: a system centerplane at the top rear and a power centerplane at the bottom rear. Between the two centerplanes is an exhaust filter. Both centerplanes are removed from the rear of the system.

10.2.1 Removing the System Centerplane or the Power Centerplane

1. **Halt the Solaris operating environment in each domain and power off the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.

2. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap. Place a grounded ESD mat close to the system.**

3. **Preparing to remove the centerplanes:**

   - System centerplane

   a. Disconnect all I/O cables.

   b. At the front of the system, make sure that the three power switches on the AC input box are turned off.

   c. Disconnect the AC input box power cords.

   d. Remove all boards (including filler boards), fan trays, and the AC input box (FIGURE 10-13**).**

   - Power centerplane

   a. At the front of the system, make sure that the three power switches on the AC input box are turned off.

   b. Remove all three power supplies (FIGURE 10-13**).**

Note – Do not remove the ID Source board from the centerplane.

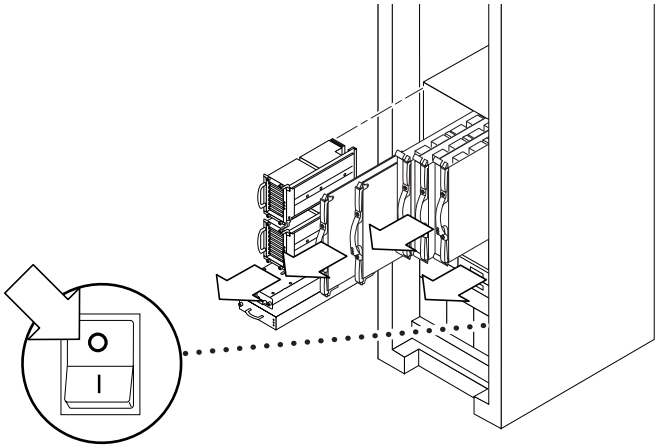

FIGURE 10-13 Removing All Boards, Fan Trays, AC Input Box, and Power Supplies From the Front of the Sun Fire 4810 System

4. **At the rear of the system, remove the left five screws of the mounting bracket for access to remove the screen (**FIGURE 10-14**).**

5. **At the rear of the system, remove the screws securing the rear screen panel to the system (**FIGURE 10-14**).**

   Remove the screen by first swinging the left side out past the mounting bracket and then remove the screen.

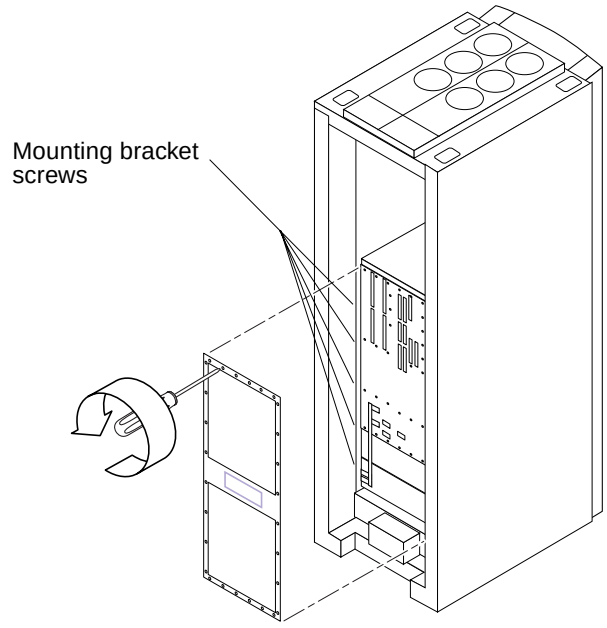

FIGURE 10-14 Rear Screen Panel—Sun Fire 4810 System

6. **Disconnect the cable connecting the system backplane and the power backplane (**FIGURE 10-15**).**

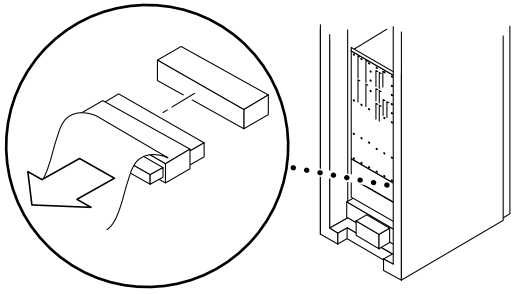

FIGURE 10-15 Disconnecting the Signal Cable—Sun Fire 4810 System

7. **Remove the three screws securing the cover over the bus bar, and remove the bus bar insulator (**FIGURE 10-16**).**

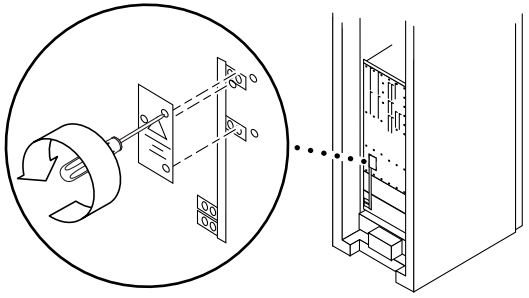

FIGURE 10-16 Removing the Screws Securing the Cover to the Bus Bar and Removing the Bus Bar Insulator—Sun Fire 4810 System

8. **Remove the eight screws securing the bus bar to the backplanes (**FIGURE 10-17**.)**

   There are four screws at the lower left and four screws at the upper right.

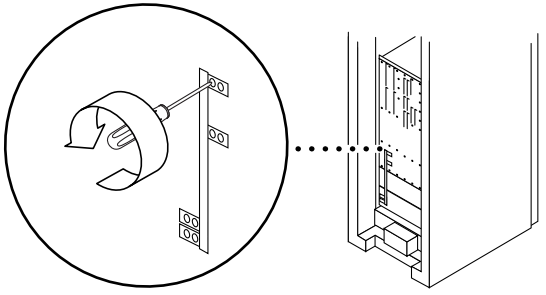

FIGURE 10-17 Removing the Bus Bar—Sun Fire 4810 System

10.2.1.1 Removing the System Centerplane

1. **Remove the 36 screws securing the system centerplane to the chassis (**FIGURE 10-18**).**
2. **Remove the system centerplane carefully from the chassis.**

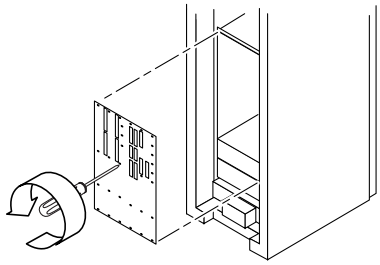

FIGURE 10-18 Removing the System Centerplane— Sun Fire 4810 System

10.2.1.2 Removing the Power Centerplane

The power centerplane is located at the very bottom of the chassis.

1. **Remove the 13 screws securing the power centerplane to the chassis.**
2. **Remove the power centerplane carefully from the chassis.**

10.2.2 Installing the System Centerplane or the Power Centerplane

10.2.2.1 Installing the System Centerplane

1. **Align the system centerplane at the bottom rear of the chassis, and replace the screws (**FIGURE 10-18**).**
2. **Secure the bus bar to the centerplane by replacing the eight screws (**FIGURE 10-17**).**
3. **Replace the three screws securing the protective cover over the bus bar (**FIGURE 10-16**).**
4. **Connect the signal cable to the system centerplane and the power backplane (**FIGURE 10-15**).**
5. **Replace the screws securing the rear screen panel to the system (**FIGURE 10-14**).**

6. **Replace the five screws securing the left mounting bracket to the cabinet (**FIGURE 10-14**).**

7. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap.**

8. **At the front of the system, replace all boards (including filler boards), fan trays, the and the AC input box (**FIGURE 10-13**).**

9. **Connect the AC power cords to the AC input box.**

10. **Make sure that the three power switches on the AC input box are turned on.**

11. **Power on the system.**

    Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the system.

10.2.2.2 Installing the Power Centerplane

1. **Align the power centerplane with the bottom of the chassis, and replace the screws.**

2. **Secure the bus bar to the centerplane by replacing the eight screws (**FIGURE 10-17**).**

3. **Replace the three screws securing the protective cover over the bus bar (**FIGURE 10-16**).**

4. **Connect the signal cable to the system centerplane and the power backplane (**FIGURE 10-15**).**

5. **Replace the screws securing the rear screen panel to the system (**FIGURE 10-14**).**

6. **Replace the five screws securing the left mounting bracket to the cabinet (**FIGURE 10-14**).**

7. **At the front of the system, replace all the power supplies (**FIGURE 10-13**).**

8. **Make sure that the three power switches on the AC input box are turned on.**

9. **Power on the system.**

    Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the system.

10.3 Replacing the Centerplane in a Sun Fire 4800 System

There is one centerplane in the Sun Fire 4800 system.

10.3.1 Removing the Centerplane

1. **Halt the Solaris operating environment in each domain and power off the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.

2. **Remove the power cord.**

3. **Attach a wrist strap or foot strap to the ESD jack on the system. Place a grounded ESD mat close to the system.**

4. **At the back of the system, remove the two bottom fan trays and all boards (**FIGURE 10-19**).**

Note – Do not remove the ID Source board from the centerplane.

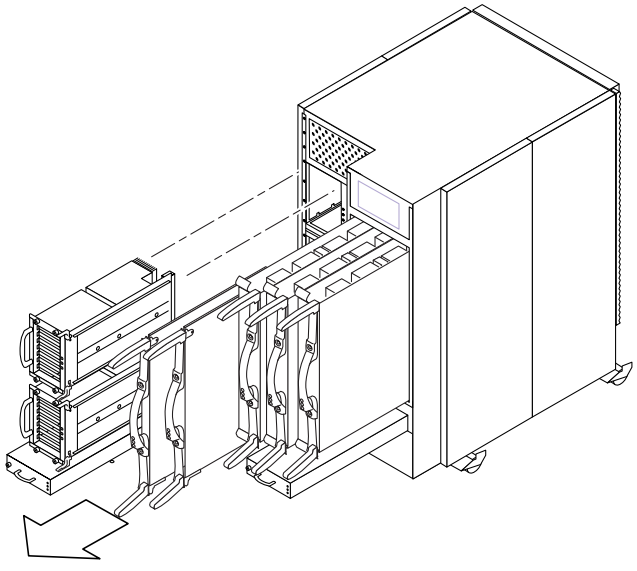

FIGURE 10-19 Removing the Bottom Fan Tray, CPU/Memory Boards, and I/O Assemblies—Sun Fire 4800 System

5. **Remove the front door (**FIGURE 10-20**).**

   a. **Open the door.**

   b. **Push down on the spring latch inside the top cover of the door.**

c. Remove the door.

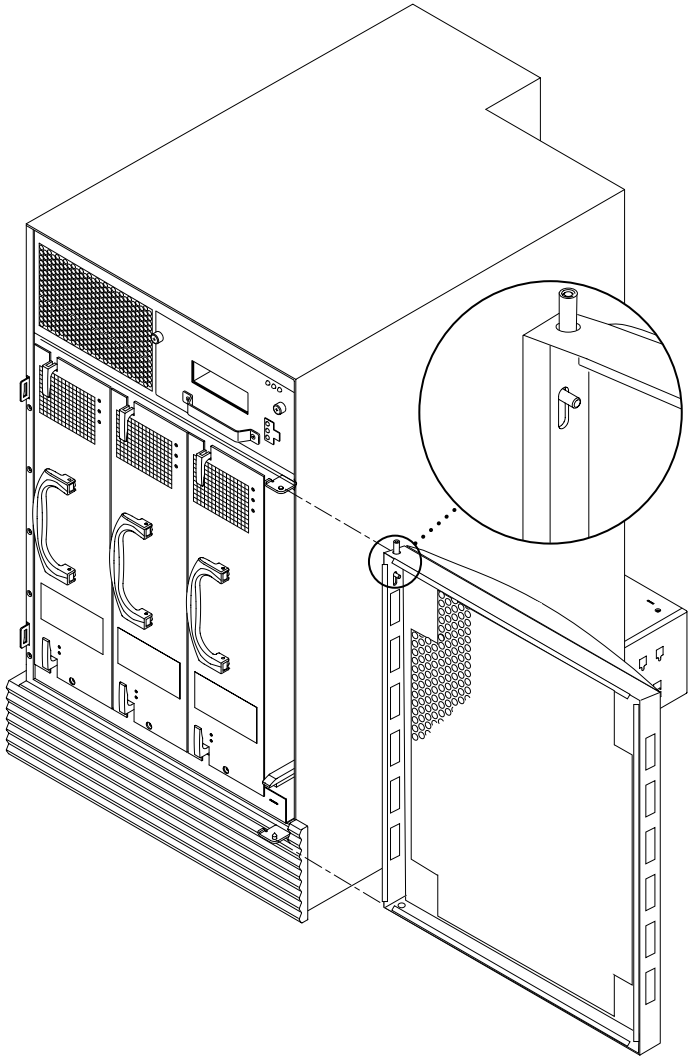

FIGURE 10-20 Removing the Front Door— Sun Fire 4800 System

6. **At the front of the system, remove all power supplies.**

FIGURE 10-21 shows removing one power supply from the system.

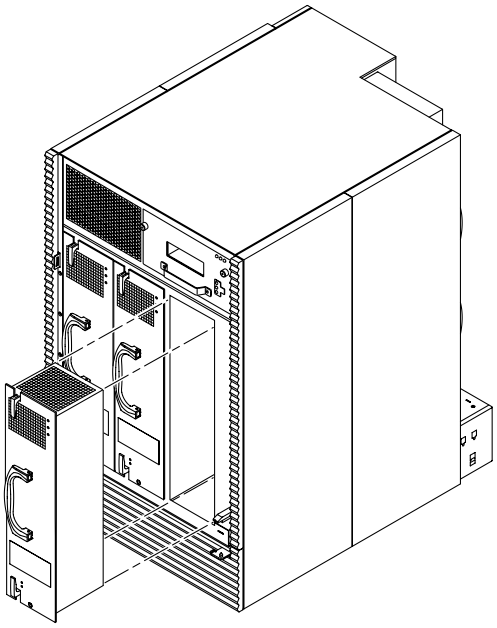

FIGURE 10-21 Removing a Power Supply at the Front of the Sun Fire 4800 System

7. **Disconnect the two cables from the connectors on the centerplane.**

   Both cables are on the right. You will need to use force to disconnect the cables.

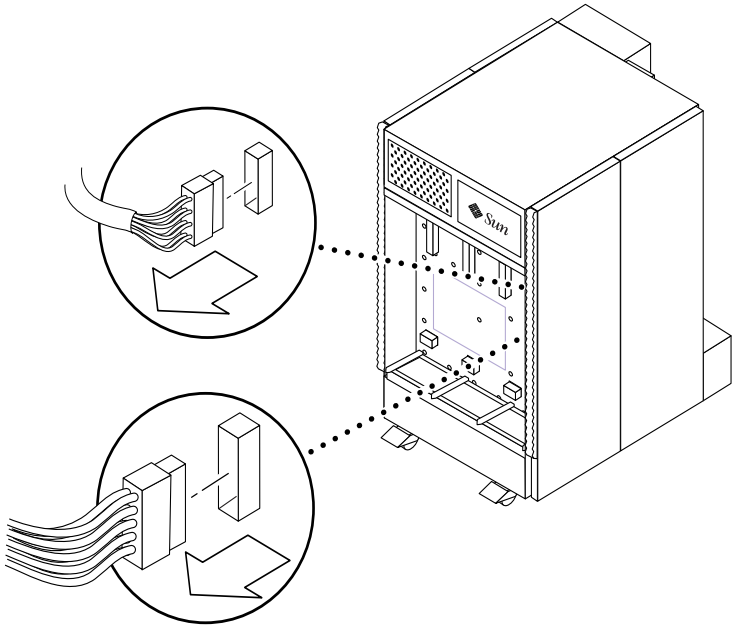

FIGURE 10-22 Disconnecting Cables From the Connectors on the Centerplane—Sun Fire 4800 System

8. **Remove the lower and upper power supply supports as follows:**

   a. **Remove the two screws securing the lower power support to the system enclosure.**

   b. **Remove the two screws securing the upper power supply support to the system enclosure.**

   c. **With both hands, firmly pull the upper power supply support away from the centerplane and rotate the front of the upper power supply support downward, and then remove it.**

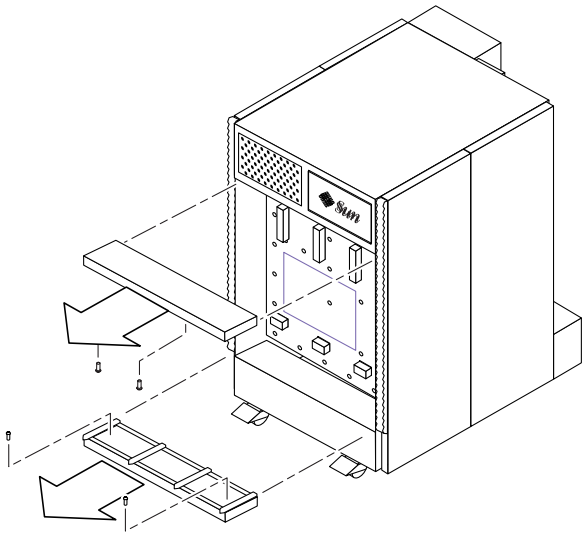

FIGURE 10-23 Removing the Top and Bottom Power Supply Supports—Sun Fire 4800 System

9. **Remove the plastic cable guide located on the bottom of the power supply bay, next to the right wall.**

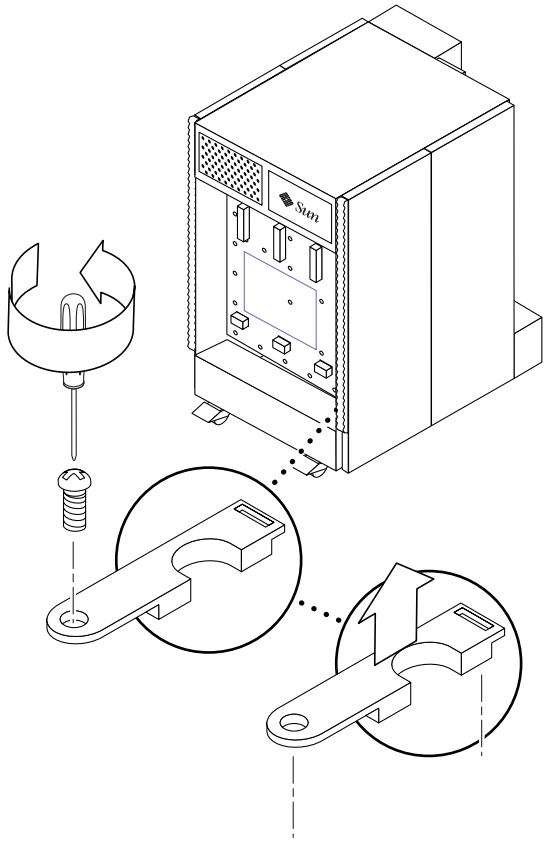

FIGURE 10-24 Removing the Cable Guide—Sun Fire 4800 System

10. **Using a long handled #2 Phillips screwdriver, remove the 30 screws securing the centerplane to the system enclosure.**

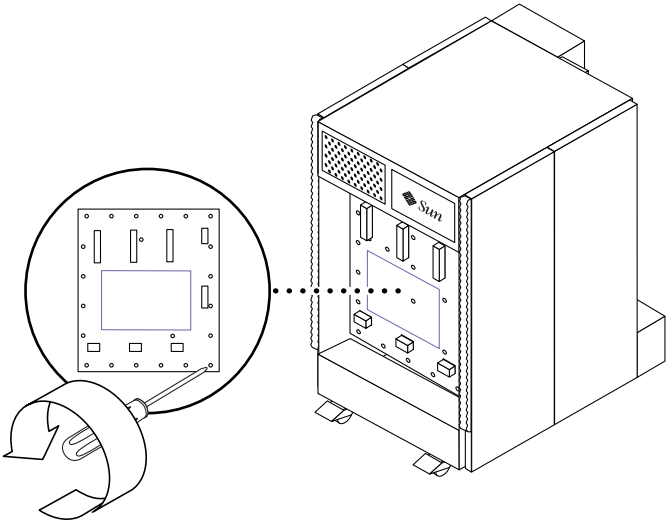

FIGURE 10-25 Removing the Screws Securing the Centerplane to the System—Sun Fire 4800 System

11. Remove the insulator and the centerplane together (FIGURE 10-26**).**

It may be necessary to rotate the centerplane to clear cables along the right-hand wall.

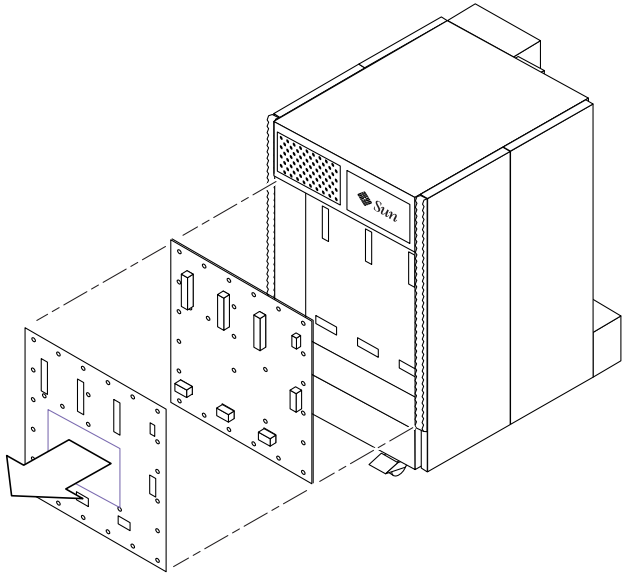

FIGURE 10-26 Removing the Centerplane and Insulator—Sun Fire 4800 System

10.3.2 Installing the Centerplane

1. **Align the centerplane insulator on the connectors on the centerplane .**
2. **Align the insulator and the centerplane with the three guide pins that are on the interior flange (**FIGURE 10-26**).**

   There is one guide pin at the upper edge and two guide pins at the lower edge.
3. **Replace the 30 screws securing the insulator and centerplane to the system enclosure (**FIGURE 10-25**).**
4. **Replace the plastic cable guide (**FIGURE 10-24**).**
5. **Replace the upper and lower power supply support (**FIGURE 10-23**).**

Caution – Push the power supply supports in as far as they will go, so that they contact the centerplane. If you do not push them in far enough, they will not make contact with the centerplane.

   a. **Replace the two screws securing the upper power supply support to the system enclosure.**
   b. **Replace the lower power supply support by replace the two screws securing the support to the system enclosure.**
6. **Connect the cables to the centerplane (**FIGURE 10-22**).**
7. **Replace the power supplies (**FIGURE 10-21**).**
8. **Replace the front door (**FIGURE 10-20**).**
   a. **Position the door so that it is only slightly less than 90 degrees open.**
   b. **At the bottom of the door, insert the hole into the post.**
   c. **At the top of the door, push down on the spring latch located on the upper-inside cover of the door.**
   d. **Align the pin with the pivot hole.**
9. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap.**
10. **At the back of the system, replace the bottom two fan tray assemblies and boards (**FIGURE 10-19**).**
11. **Power on the system.**

    Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the system.

10.4 Replacing the Centerplane in a Sun Fire 3800 System

10.4.1 Removing the Centerplane

To remove the centerplane from a powered-off system:

1. **Halt the Solaris operating environment in each domain and power off the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.

2. **If you have only one Sun Fire 3800 in a cabinet or, if the Sun Fire 3800 system is a standalone system, remove the power cords from the wall outlets.**

3. **Disconnect the power cords from the power supplies.**

4. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap. Place a grounded ESD mat close to the system**

5. **At the front of the system, remove the boards and the I/O assemblies. You do not need to remove the board filler panels, but you do need to remove the I/O assembly filler board (**FIGURE 10-27**).**

   Refer to the Chapters 6, 7, and 10 of this book for the removal procedures.

Note – When you remove the boards and assemblies from the system, do not stack the boards and assemblies of top of each other.

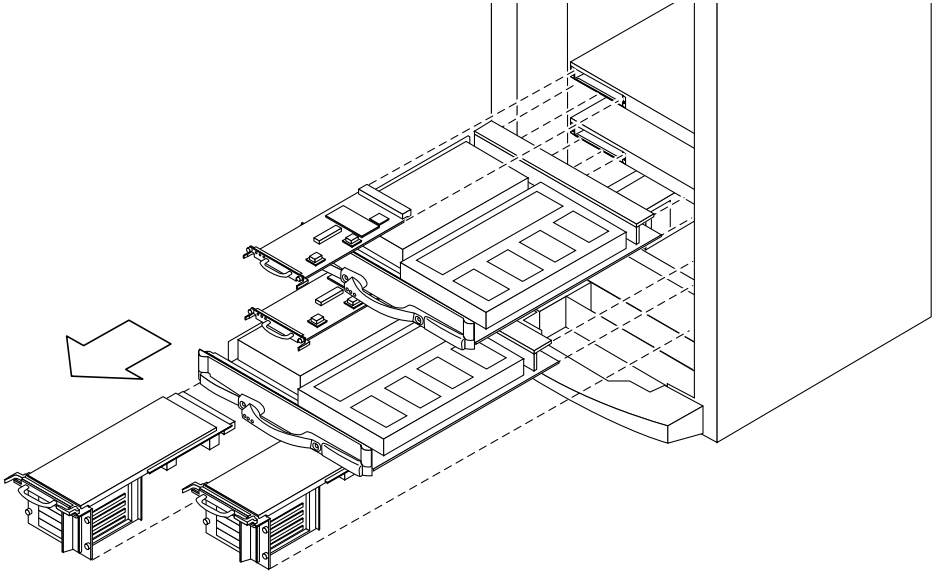

FIGURE 10-27 Removing the Boards— Sun Fire 3800 System

6. **At the front of the system, disconnect the LED cable (**FIGURE 10-28**).**
   The connector key is on the top horizontal surface.

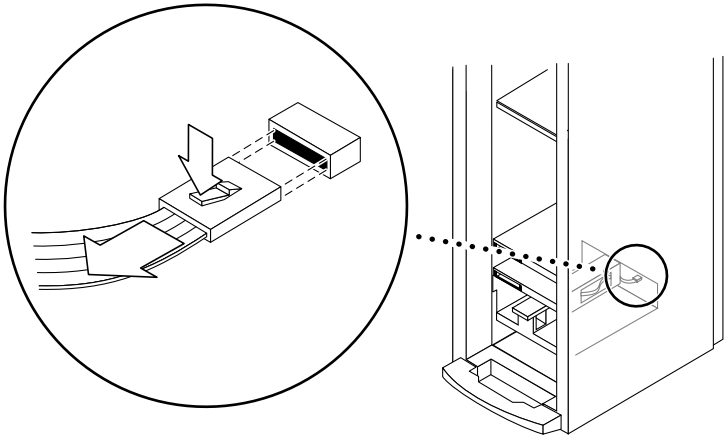

FIGURE 10-28 Disconnecting the LED Cable—Sun Fire 3800 System

7. **At the rear of the system, remove the fan trays and the fan tray filler panel.**

FIGURE 10-29 illustrates how to remove a fan tray from the system.

a. Loosen the captive screws.

b. Make sure that the power cords to the power supplies are out of the way.

c. Slide the fan trays out.

d. Remove the fan tray filler panel (if installed).

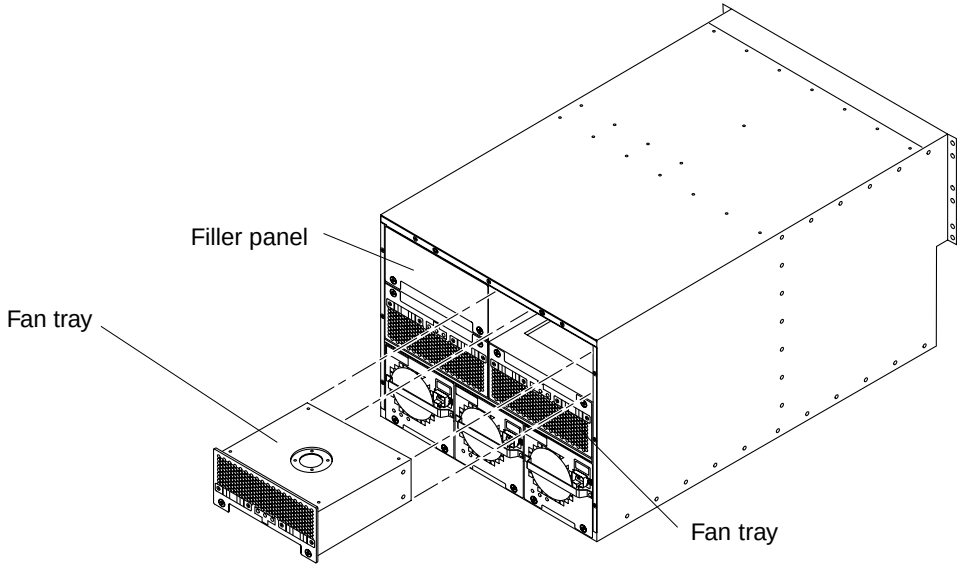

FIGURE 10-29 Removing a Fan Tray—Sun Fire 3800 System

8. Remove the power supplies and power supply filler panels.

FIGURE 10-30 illustrates how to remove a power supply. You must remove all the power supplies and the filler panels as well.

Following are abbreviated steps. See Section 8.1.5.1 “Removing a Sun Fire 3800 System Power Supply” on page 8-10 for more details.

a. Loosen the captive screws.

b. Holding the power supply handle, slide the power supply partially out of the system.

Caution – Do not remove the power supply completely from the system while holding the handle of the power supply.

c. Holding the power supply with both hands, slide the power supply completely out of the system.

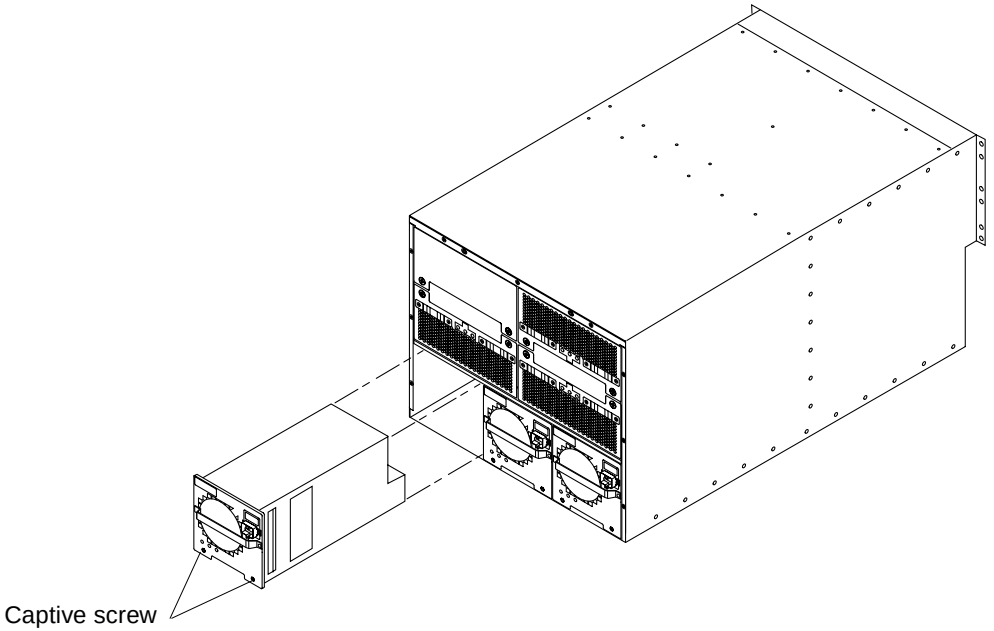

FIGURE 10-30 Removing a Power Supply—Sun Fire 3800 System

d. Remove the power supply filler panels.

9. **If the Sun Fire 3800 system is installed in a cabinet, remove the clamp (**FIGURE 10-31**).**

   a. **Beginning at one end of the clamp, remove the six larger screws with a Phillips screwdriver.**

   b. **Working your way around the clamp, continue to remove all the screws that secure the clamp.**

      There are two screws on the top and two screws on each of the two sides.

   c. **Put your fingers in the holes and remove the clamp.**

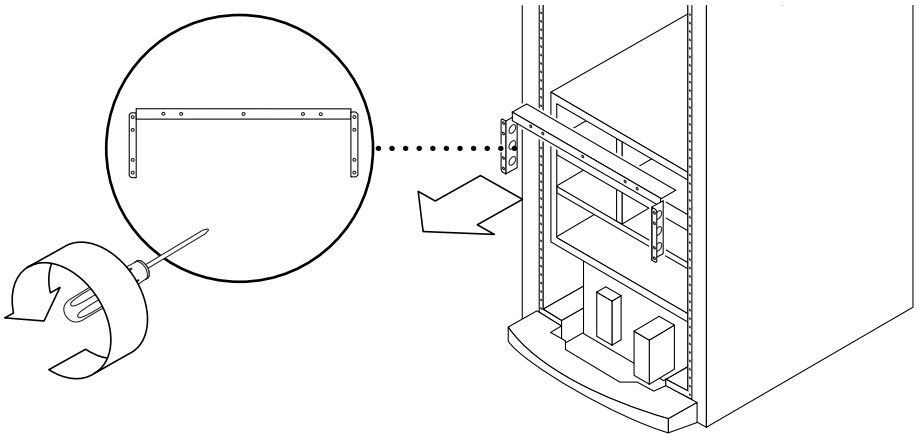

FIGURE 10-31 Removing the Clamp—Sun Fire 3800 System

10. **Remove the nine smaller screws with a Phillips screwdriver (**FIGURE 10-32**). Make sure that the power supply cables are clear and remove the subchassis.**

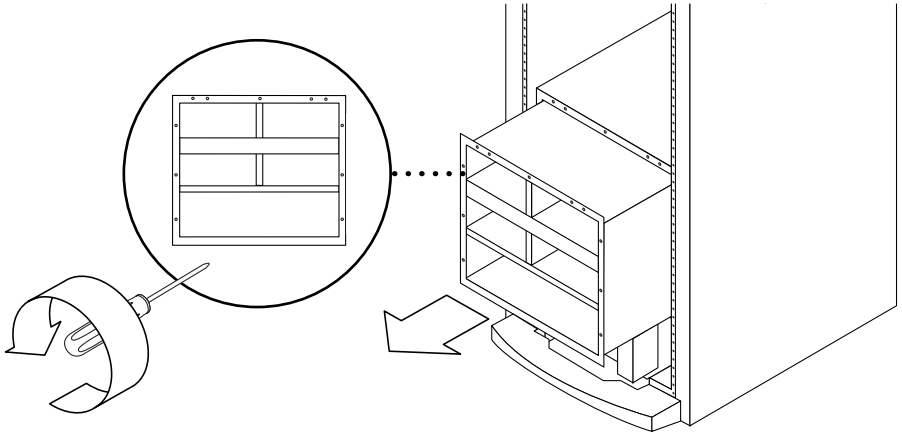

FIGURE 10-32 Removing the Subchassis

11. **Remove the six screws of the lower bulkhead with a Phillips screwdriver (**FIGURE 10-33**). Remove the lower bulkhead.**

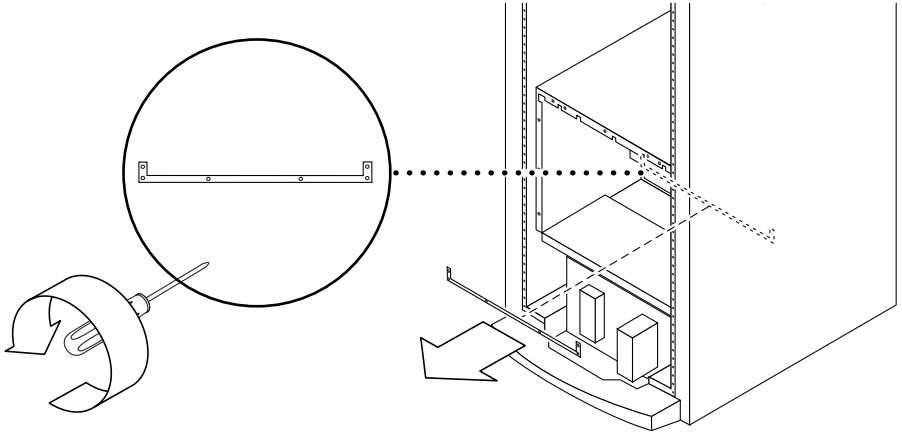

FIGURE 10-33 Removing the Lower Bulkhead

12. **Use a long handled Phillips screwdriver to loosen the 18 captive screws on the bulkhead that attach the centerplane to the system. Loosen the captive screws in this order:**

    - Four corners
    - Middle
    - Remaining screws, working your way around the edges

    The centerplane hangs on a guide pin and will begin to shift when the last bulkhead screw is unfastened.

13. **Disengage the centerplane from the guide pin in the center of the cabinet. Hold the centerplane, with one hand on the top and one hand on the middle while you are detaching it from the guide pin (**FIGURE 10-34**). Remove the centerplane.**

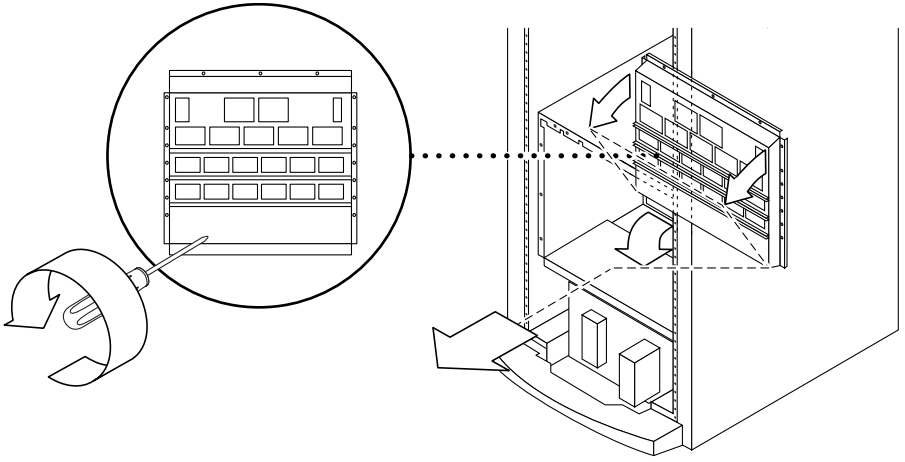

FIGURE 10-34 Removing the Centerplane—Sun Fire 3800 System

10.4.2 Installing the Centerplane

These installation steps assume that you have removed the centerplane from the system.

1. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap. Place a grounded ESD mat close to the system.**
2. **At the rear of the system, install the centerplane (**FIGURE 10-34**).**
   a. **While holding on to the centerplane at the bottom and the middle, mount the centerplane to the guide pin in the top center. Hold on to the centerplane while mounting it.**
   b. **Partially tighten the 18 captive screws that attach the centerplane to the system two or three turns with a Phillips screwdriver, in this order:**
      - Upper-left corner
      - Lower-right corner
      - Upper-right corner
      - Lower- left corner
      - Middle screws in this order: (top-middle, left-side middle, right-side middle)
   c. **Partially tighten the remaining screws, two or three turns with a long handled Phillips screwdriver, beginning at the lower left of the unit. Continue around the unit from left to right, and partially tighten the screws two or three turns, ending with the lower right.**

      Tighten the screws in the same order.
3. **Install the lower bulkhead (**FIGURE 10-33**).**
   a. **Partially tighten the six screws, making two or three turns with a Phillips screwdriver, in the following order:**
      - Upper-left corner
      - Upper-right corner
      - Lower- left corner
      - Lower-right corner
      - Left middle
      - Right middle
   b. **Tighten the screws in the same order.**
4. **Verify that all screws tightened up to this point as specified in these instructions.**
5. **Slide in the subchassis, making sure that the power supply cables are out of the way (**FIGURE 10-32**).**
   a. **Partially tighten the nine screws, making two or three turns with a Phillips screwdriver in this order:**

- Upper-left
- Lower-right
- Lower-left
- Upper-right
- Upper-middle screws
- The remaining screws

b. Tighten the screws in the same order.

6. If you are replacing the Sun Fire 3800 system in a cabinet, install the clamp (FIGURE 10-31**).**

There are six screws: two screws on the top and two screws on each of the two sides.

a. Beginning at one end of the clamp, partially tighten the first screw with a Phillips screwdriver.

b. Continuing to work your way around the clamp, partially tighten each screw with a Phillips screwdriver.

c. Tighten the screws in the same order.

7. Install the power supplies and power supply filler panels (FIGURE 10-30**).**

Caution – Do not connect the power supply cables to the power supplies when you install the power supplies. The power must be turned off.

If you are replacing only one power supply, the default positions are at the right-hand side. If you are replacing two power supplies, the default positions are the right and the middle position.

a. Holding the power supply base with both hands, slide the power supply partially in.

b. Holding the power supply handle with both hands, slide the power supply into the system until it is fully engaged.

c. Tighten the two captive screws.

d. Attach the power supply cable.

e. Install the power supply filler panels in the empty power supply slots. Tighten the captive screws.

8. **Install the fan trays (**FIGURE 10-29**).**

   The bottom two fan trays are installed with the captive screws on the top. The top two fan trays are installed with the captive screws on the bottom. The default configuration is three fan trays installed in this order (TABLE 10-1).

TABLE 10-1 Default Fan Tray Configuration

Top Left	Top Right	Bottom Left	Bottom Right
Filler panel, FT1	fan tray, FT0	fan tray, FT3	fan tray, FT2

   a. **Slide in the bottom two fan trays, FT3 and FT2.**

      Make sure that the captive screws are on the top.

   b. **Tighten the two captive screws.**

   c. **Slide in the top two fan trays, FT0 and FT1.**

      Make sure that the captive screws are on the bottom.

   d. **Tighten the captive screws.**

   e. **Install the fan tray filler panels to cover the empty fan tray slots.**

9. **Verify that the captive screws on the power supplies and fan trays are tightened properly.**

10. **Reconnect the LED cable (**FIGURE 10-28**).**

    The connector key should go on the top.

Tip – A small flashlight can be useful when you connect the LED cable.

---

11. **At the front of the system, install the boards and assemblies in this order (**FIGURE 10-27**).**

    - I/O assembly filler board
    - I/O assembly
    - Two system controller boards
    - Lower CPU/Memory board
    - Upper CPU/Memory board

    Refer to Chapters 6, 7, and 10 of this book for installation procedures.

12. **Reconnect the cables to the System Controller boards and the I/O assemblies.**

13. **Reconnect the power supply power cords.**

14. **Power on the system.**

    Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the system.

10.5 Replacing the Sun Fire 3800 System LED Board

The purpose of the system LED board is to show the current state of the active ASIC hardware on the centerplane. The two LEDs that are used are the activated LED and the fault LED.

10.5.1 Removing the LED Board

1. **Disconnect all I/O cables.**
2. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap. Place a grounded ESD mat close to the system.**
3. **At the front of the system, remove the I/O assemblies or I/O assembly filler board (**FIGURE 10-35**).**

   See Chapter 5 for the I/O assembly removal procedures.

Note – When you remove the assemblies from the system, do not stack the assemblies of top of each other.

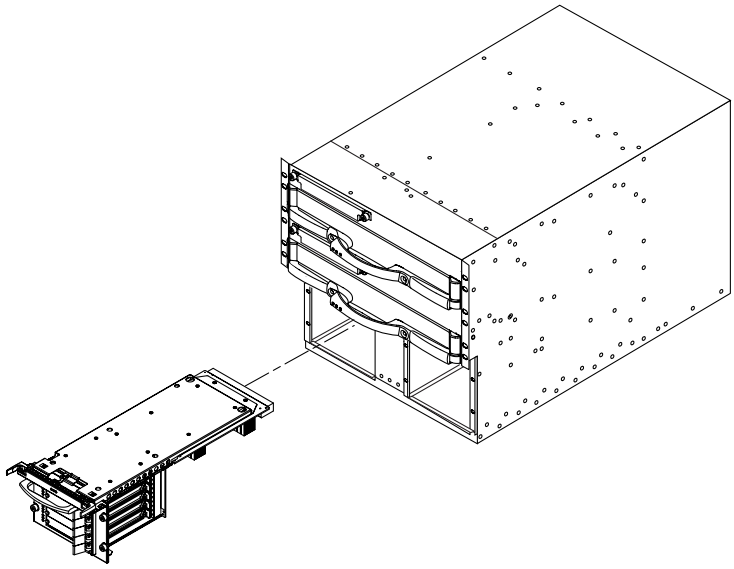

FIGURE 10-35 Removing the I/O Assembly—Sun Fire 3800 System

4. **From the front of the system, disconnect the LED cable from the centerplane (**FIGURE 10-36**).**

   The connector key is on the top horizontal surface.

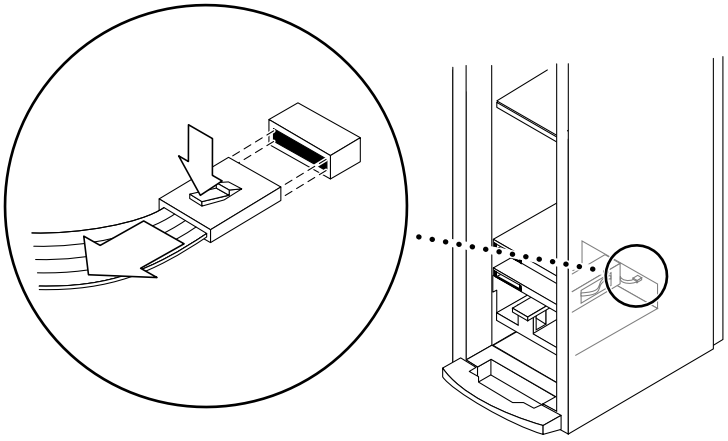

FIGURE 10-36 Disconnecting the LED Cable From the Centerplane—Sun Fire 3800 System

5. **With a short Phillips screwdriver, remove the two screws securing the system LED board to the chassis.**

6. **Carefully remove the board, making sure that the cable connector does not catch on the chassis framework.**

10.5.2 Installing the LED Board

1. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap.**

2. **Carefully push through the cable, making sure that the cable connector does not catch on the chassis framework.**

3. **With a short Phillips screwdriver, tighten the two screws to secure the system LED board to the chassis.**

4. **From the front of the system, connect the LED cable from the centerplane (**FIGURE 10-36**).**

5. **At the front of the system, reinstall the I/O assemblies or I/O assembly filler board (**FIGURE 10-35**).**

   See Chapter 5 for the I/O assembly replacement procedures.

10.6 Replacing ID Source Boards

The purpose of the ID source board is to associate nonvolatile state space with the chassis and centerplane. It provides a location where the system controller configuration and other data can be written. The data written includes the chassis and centerplane serial numbers, the system type and the Ethernet addresses. Additionally, there is some circuitry that will be used to arbitrate bus control between the two system controllers. The ID source board is connected to the centerplane at the front of the system.

10.6.1 Removing the ID Source Board From the Sun Fire 6800 System

1. **Halt the Solaris operating environment in each domain and power down the entire system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.

2. **Facing the rear of the system, remove the upper left I/O assembly IB9, from the system.**

   See Chapter 4 for I/O assembly removal procedures.

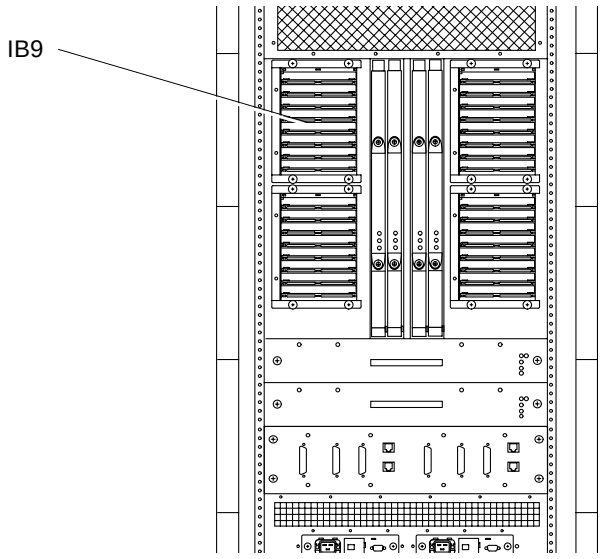

FIGURE 10-37 Remove IB9 I/O Assembly—Sun Fire 6800 System

3. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap. Place a grounded ESD mat close to the system.**

4. **Reaching into the opening created by removing the I/O assembly, grasp the ID Source board by the edges and remove it from the centerplane (**FIGURE 10-38**)**

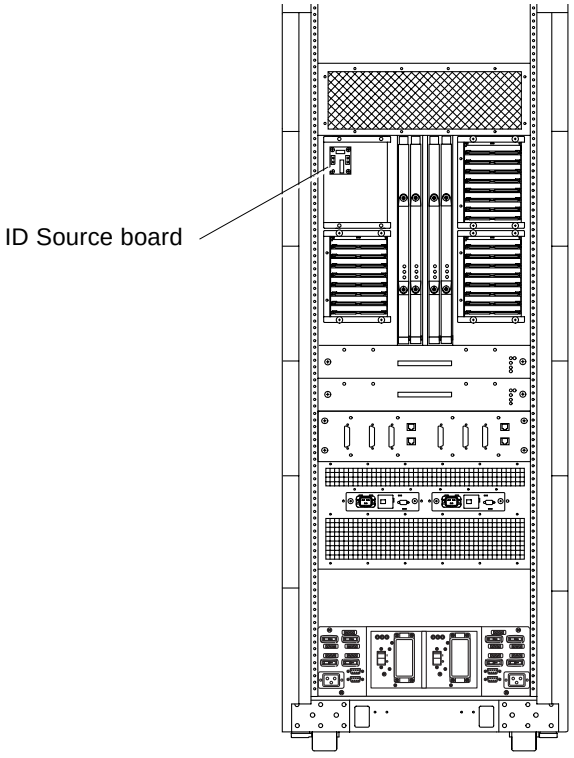

FIGURE 10-38 Removing the ID Source Board From the Centerplane—Sun Fire 6800 System

10.6.2 Installing the ID Source Board in the Sun Fire 6800 System

1. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap.**

2. **Reaching into the opening created by removing the I/O assembly and connect the ID Source board to the connectors on the centerplane (**FIGURE 10-38**).**

3. **Install the upper left I/O assembly into the system.**

4. **Power on the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the system.

10.6.3 Removing the ID Source Board From the Sun Fire 4810 System

1. **Halt the Solaris operating environment in each domain, and power down the entire system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.

2. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap. Place a grounded ESD mat close to the system.**

3. **Facing the rear of the system, remove IB8 I/O assembly from the system.**

   See Chapter 4 for I/O assembly removal procedures.

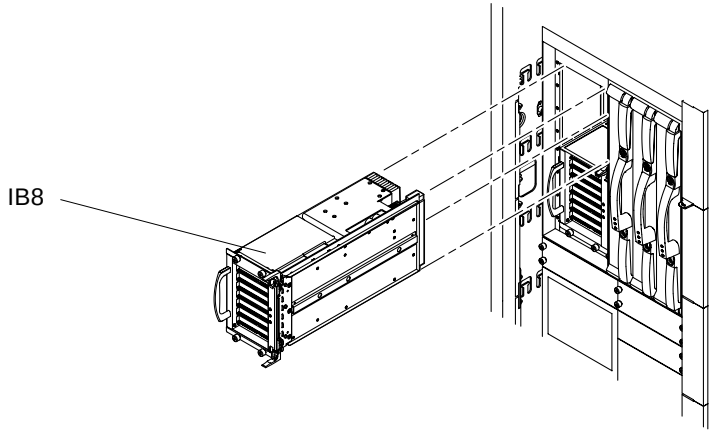

FIGURE 10-39 Removing IB8 I/O Assembly—Sun Fire 4810 System

4. **Reaching into the opening created by removing the I/O assembly, grasp the ID Source board by the edges and remove it from the centerplane (**FIGURE 10-40**).**

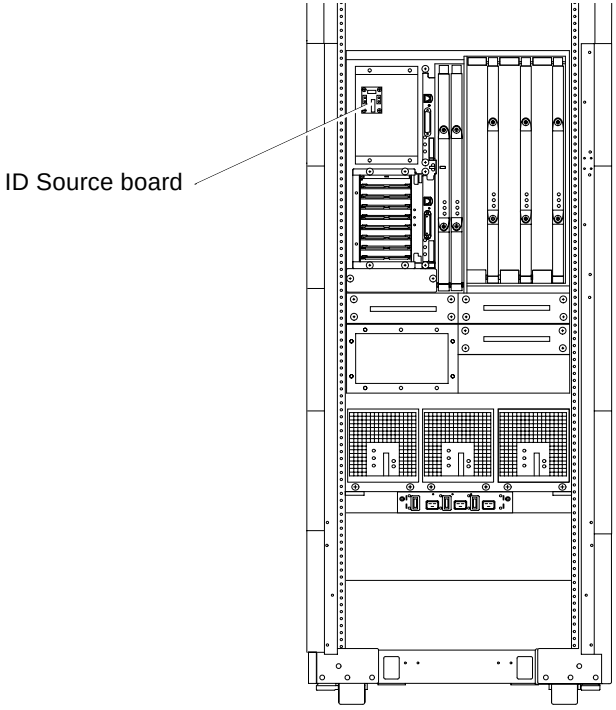

FIGURE 10-40 Removing the ID Source Board From the Centerplane—Sun Fire 4810 System

10.6.4 Installing the ID Source Board in the Sun Fire 4810 System

1. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap.**
2. **Reach into the opening created by removing the I/O assembly and connect the ID Source board to the connectors on the centerplane (**FIGURE 10-40**).**
3. **Install IB8 I/O assembly into the system (**FIGURE 10-39**).**
4. **Power on the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the system.

10.6.5 Removing the ID Source Board From the Sun Fire 4800 System

1. **Halt the Solaris operating environment in each domain and power down the entire system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering off the system.
2. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap. Place a grounded ESD mat close to the system.**
3. **At the rear of the system, remove I/O assembly IB8 and the upper System Controller board.**

   See Chapter 4 for I/O assembly, and Chapter 6 for System Controller board removal procedures.
4. **Reach into the opening created by removing the boards and grasp the ID Source board by the edges and remove it from the centerplane.**

10.6.6 Installing the ID Source Board in the Sun Fire 4800 System

1. **Attach a wrist strap or foot strap. Connect the ESD jack from the system to your wrist strap or foot strap.**
2. **Reach into the opening created by removing the boards and connect the ID Source board to the connectors on the centerplane.**

3. **Replace the top System Controller board and the top I/O assembly.**

   See Chapter 4 for I/O assembly, and Chapter 6 for System Controller board replacement procedures.

4. **Power on the system.**

   Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for complete procedures for powering on the system.

CHAPTER **11**

Patch Panel

This chapter provides procedures for the field-replaceable patch panel within the Sun Fire 6800 system cabinet. The following sections are included in this chapter:

- Section 11.1 “Patch Panel” on page 11-1
- Section 11.2 “Replacing the Patch Panel” on page 11-2

11.1 Patch Panel

There is one patch panel in the Sun Fire 6800 system cabinet. The patch panel provides an interface between the system controllers and the system. The patch panel is located in the rear of the cabinet directly above the AC input boxes and RTU.

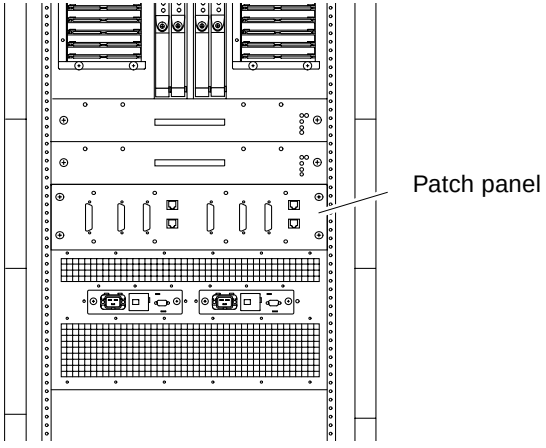

FIGURE 11-1 Patch Panel Location—Rear View

11.2 Replacing the Patch Panel

1. **Label and remove all cabling.**
2. **Loosen the four captive screws.**
3. **Remove the Patch Panel unit.**
4. **Install the replacement unit by reversing Step 1 through Step 3.**

CHAPTER **12**

FrameManager

This chapter provides procedures for field-replaceable FrameManager units within a Sun Fire 6800 system cabinet. The following sections are included in this chapter:

- Section 12.1 “FrameManager” on page 12-1
- Section 12.2 “FrameManager LEDs” on page 12-2
- Section 12.3 “Replacing the FrameManager” on page 12-2

12.1 FrameManager

The FrameManager is a set of hardware and software embedded into the Sun Fire 6800 system cabinet that allows concurrent monitoring and control of the fan trays, RTS modules, and RTU assemblies. The FrameManager is located on the top front of the cabinet (FIGURE 12-1).

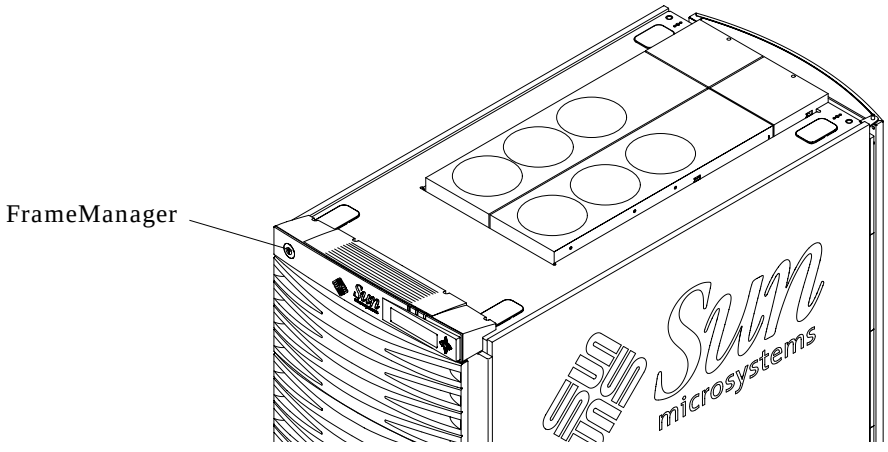

FIGURE 12-1 FrameManager

12.2 FrameManager LEDs

The LEDs indicate the status of the individual device. The FrameManager has three LEDs: power, fault, and service (TABLE 12-1).

TABLE 12-1 Frame Manager LED Major Functions

LED		Function	Operation
Green LED		Power	On when the RTS has been commanded to enable switched power.
Amber LED		Fault	On when a fault condition exists in the FrameManager, fan trays, RTS module or RTU assembly.
Amber LED		Service	FrameManager, fan trays, RTS module or RTU assembly can safely be removed from a powered-on system when the Service LED (amber) is lit.

12.3 Replacing the FrameManager

1. **Loosen the screws at the back of the assembly (**FIGURE 12-2**).**

Note – You may have to remove the two middle screws and reinstall them after you slide the replacement assembly into place.

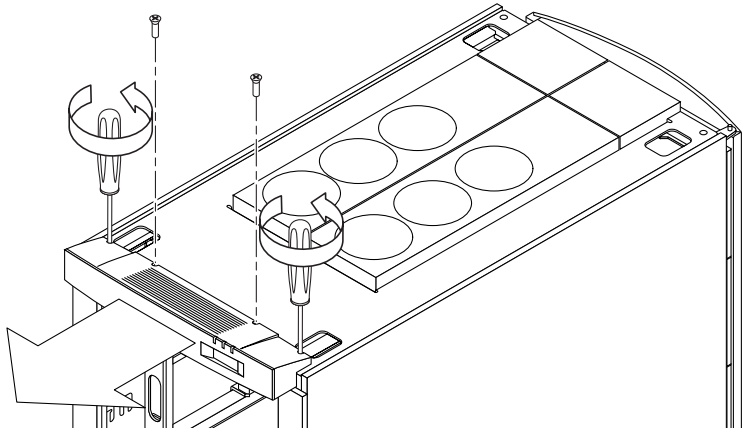

FIGURE 12-2 FrameManager Removal—Step 1

2. **Slide the assembly forward and carefully flip it onto the top of the cabinet to access the cable connector on the rear of the assembly (**FIGURE 12-3**).**

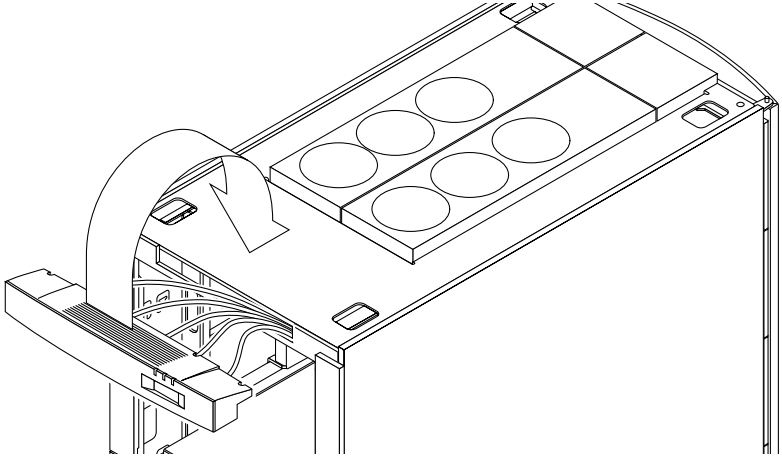

FIGURE 12-3 FrameManager Removal—Step 2

3. **Disconnect the five cables from the assembly (**FIGURE 12-4**).**

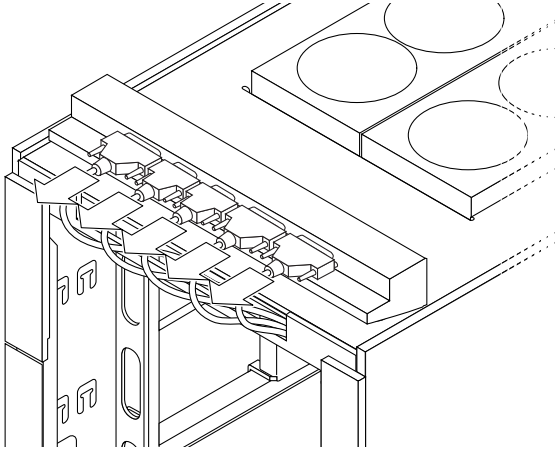

FIGURE 12-4 FrameManager Cable Location

4. **Remove the assembly from the top of the cabinet.**
5. **Install the replacement assembly by reversing Step 1 through Step 4.**

APPENDIX **A**

Functional Description

This appendix provides functional descriptions of the hardware and software components and contains the following sections:

- Section A.1 “System Overview” on page A-1
- Section A.2 “System Packaging” on page A-2
- Section A.3 “Software” on page A-8
- Section A.4 “Device Hot-Plug Procedures” on page A-9
- Section A.5 “CPU/Memory Board” on page A-9
- Section A.6 “I/O Assemblies” on page A-12
- Section A.7 “Power Supplies” on page A-15
- Section A.8 “Fan Trays” on page A-17
- Section A.9 “System Controller Board” on page A-18

A.1 System Overview

The Sun Fire 4810 and Sun Fire 4800 systems have similar card cage layouts. However, in the Sun Fire 4810 system, all boards are located in the front of the system. In the Sun Fire 4800 system, all boards are located in the rear of the system. See the figures in Section A.2 “System Packaging” on page A-2 for views of the card cage slots.

The Sun Fire 3800 system has both front and rear access. See FIGURE A-4 for front and FIGURE A-5 for rear view of the system.

The Sun Fire 6800 system has card cage slots for the System Controller boards and the CPU/Memory boards in the front of the system. In the rear of the system are slots for the I/O boards and the Repeater boards.

All systems feature shared-memory multiprocessors and most of the same boards and operating software. The Sun Fire 3800 system does not have the Repeater boards or a PCI I/O assemblies. The Sun Fire 3800 system has the equivalent of two

Repeater boards integrated into the active centerplane. The Sun Fire 3800 system only supports the CompactPCI I/O assemblies. The power supplies are the same on the Sun Fire 6800 and Sun Fire 4810 systems. The Sun Fire 4800 system has a different power supply style. The Sun Fire 3800 system has a third power supply style.

Information about various boards in the system is presented later in this appendix.

A.2 System Packaging

This section describes the features of the system enclosures.

A.2.1 Sun Fire 6800 System

TABLE A-1 lists the parts of the system in the front view and rear view.

TABLE A-1 Sun Fire 6800 System Components

Front of the system	Rear of the System
Up to 6 CPU/Memory boards	Up to 4 I/O assemblies
2 fan trays	Up to 4 Repeater boards
2 to 6 power supplies	2 fan trays
Up to 2 System Controller boards	

FIGURE A-1 shows the front and rear views of the Sun Fire 6800 system.

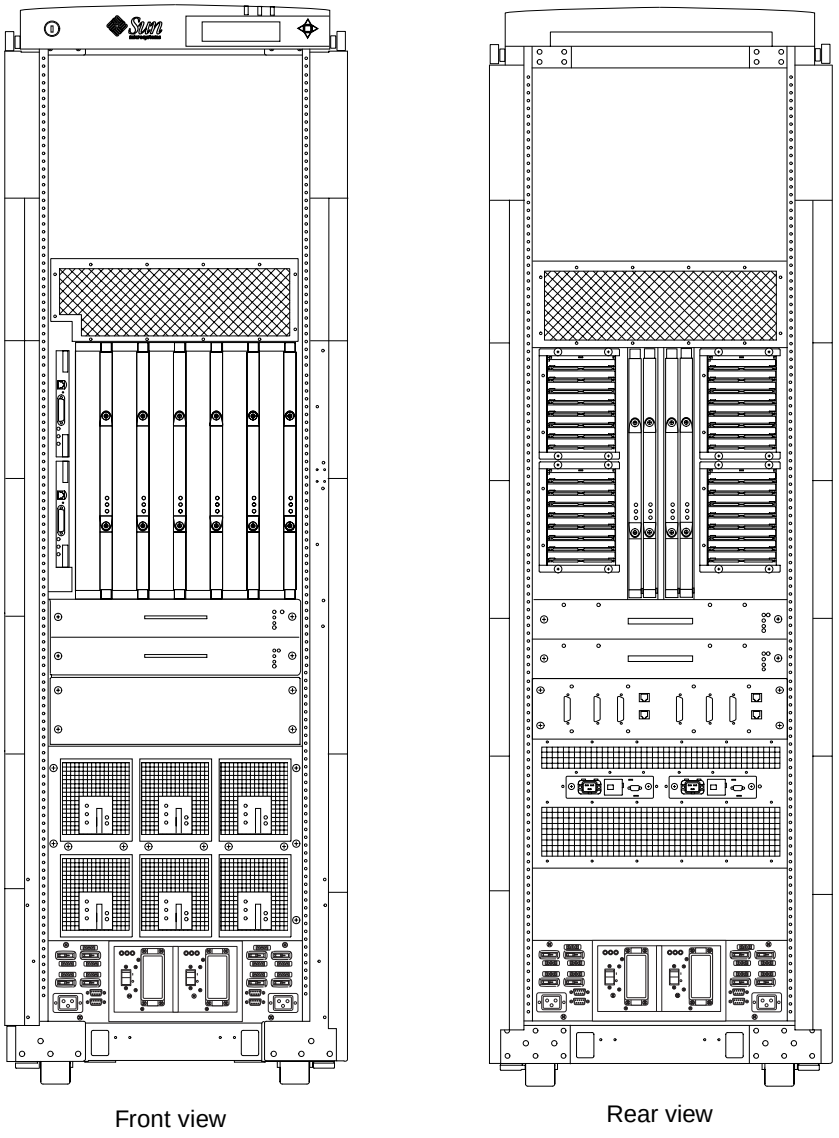

FIGURE A-1 Sun Fire 6800 System—Front and Rear Views

A.2.2 Sun Fire 4810 System

At the front of the system are slots for:

- Up to two I/O assemblies
- Up to two System Controller boards
- Up to two Repeater boards
- Up to three CPU/Memory boards
- Up to three power supplies
- Up to three fan trays
- AC input box

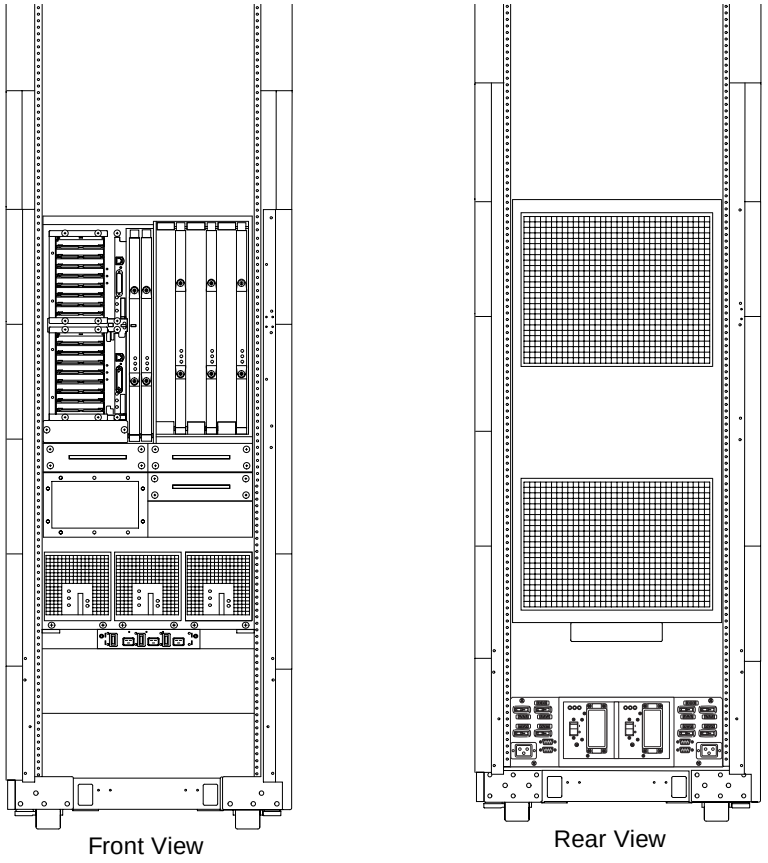

FIGURE A-2 Sun Fire 4810 System Mounted in Sun Fire Cabinet—Front and Rear Views

Air circulation for the system boards is provided by the fan trays.

A.2.3 Sun Fire 4800 System

At the rear of the system there are slots for the following:

- Up to two I/O assemblies
- Up to two System Controller boards
- Two Repeater boards
- Up to three CPU/Memory boards
- Up to three fan trays
- AC input box

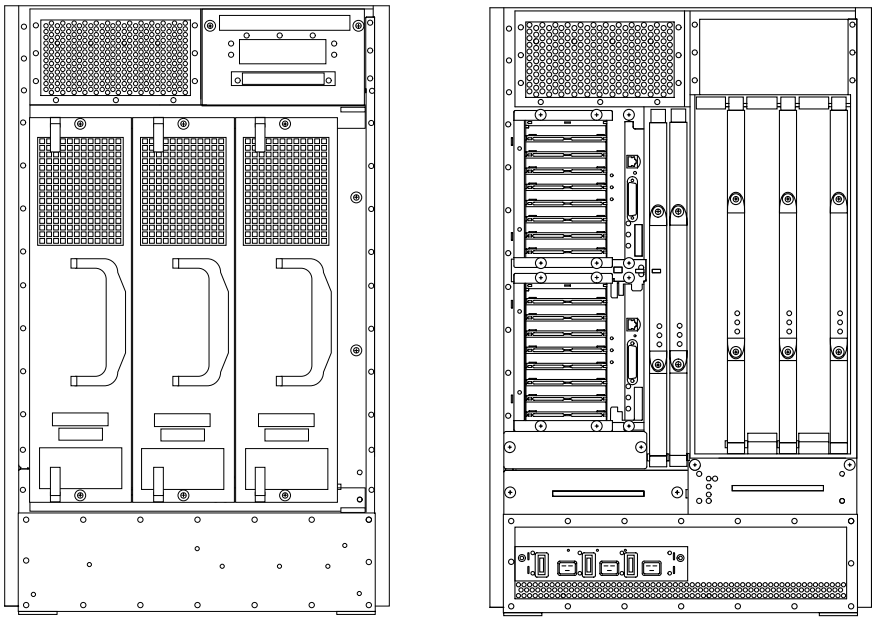

FIGURE A-3 Sun Fire 4800 System—Front and Rear Views

A.2.4 Sun Fire 3800 System

At the front of the system (FIGURE A-4) there are slots for:

- Up to two CPU/Memory boards
- Up to two System Controller boards
- Up to two Compact PCI I/O assemblies

The equivalent of two Repeater boards are integrated into the active centerplane of the system.

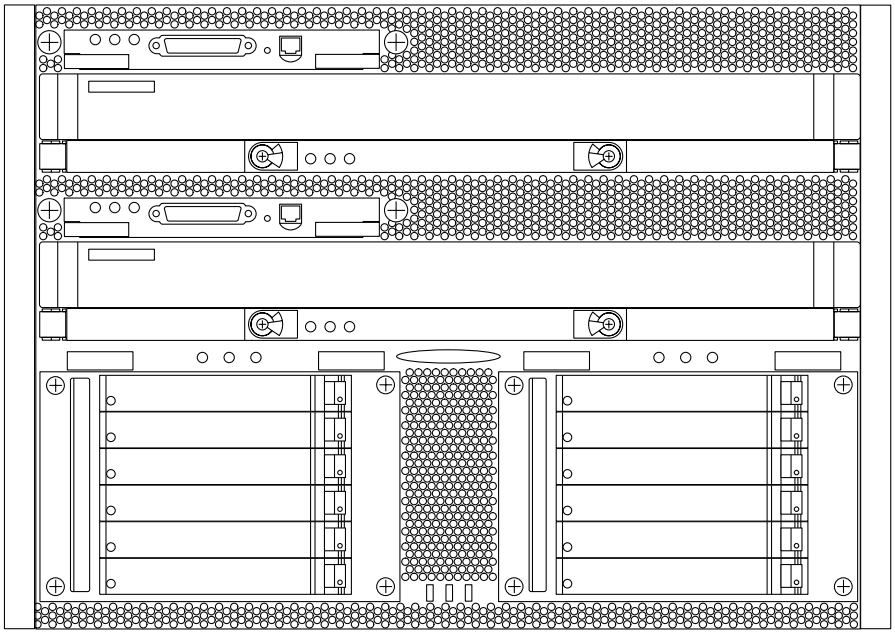

FIGURE A-4 Sun Fire 3800 System—Front View

At the rear of the system (FIGURE A-5), there are slots for:

- Up to three power supplies
- Up to four fan trays

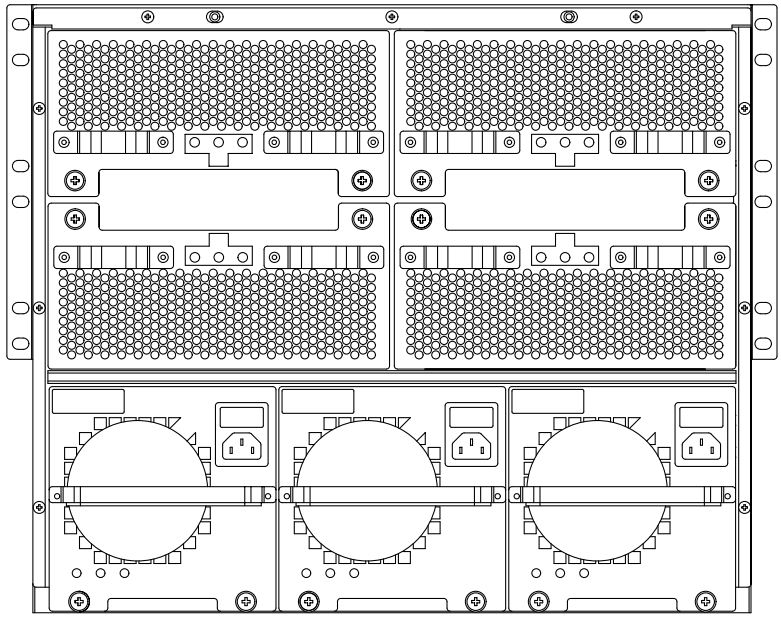

FIGURE A-5 Sun Fire 3800 System—Rear View

A.3 Software

A.3.1 System Controller Software

The system controller software is new to this product. Some of the functionality of the system controller software includes:

- Powering on boards, fan trays, power grids, or the entire system
- Hot-plugging or hot-swapping components
- Providing configuration control
- Providing environmental status
- Rearranging domains
- Changing the system controller password

A.3.2 FrameManager Software

The FrameManager is an LCD display that is located in the top of the system cabinet. The primary function of the FrameManager is to display the faults or alerts in the cabinet.

Some of the secondary functions of the FrameManager in the future may include entering the name and IP address of the system cabinet or access control (for entering a password).

The FrameManager manages three LEDs: power, fault, and service (TABLE A-2)

TABLE A-2 FrameManager LED Functions

LED		Function	Operation
Activated LED (green)		Power	On when the RTS has been commanded to enable switched power.
Fault LED (amber)		Fault	On only when a fault condition exists somewhere in the frame. Remote commands can also cause this LED to be lit.
OK to remove LED (amber)		Service	On when any of the following conditions are met: • A fan tray is detected and its service indicator is lit. • An RTS module is detected and it has a fault. • A fault is detected in the top cap or a remote command caused the service LED to be lit.

A.4 Device Hot-Plug Procedures

The power supplies and fan trays are hot-pluggable. When a device is hot-pluggable, it does not require intervention from the Solaris operating environment. As long as you power off the device using the system controller software and the amber OK to remove LED is lit, you can safely remove the device from the system.

When you hot-plug a fan tray or power supply, you must install a replacement within one minute of removing the component from the system. The amber OK to remove LED must be on before you can safely remove the device.

A.5 CPU/Memory Board

The CPU/Memory board supports up to four CPUs, eight banks of Ecache, and 32 DIMMs (two DIMM banks of four DIMMs per bank for each CPU).

When you remove the CPU/Memory board to install components on it, you must install a CPU/Memory filler panel (which covers the board slot) or a filler board into the board slot within one minute of removing the board. The filler board or filler panel prevents the system from overheating.

If you remove two CPU/Memory boards to swap components between the two boards, you must install a filler panel, which covers one board slot, and install a filler board in the other CPU/Memory board slot.

You must install a filler board in all other empty CPU/Memory board slots.

FIGURE A-6 illustrates the CPU/Memory board with the CPU processor and Ecache module cover removed. Note that two Ecache modules flank each side of the CPU processor.

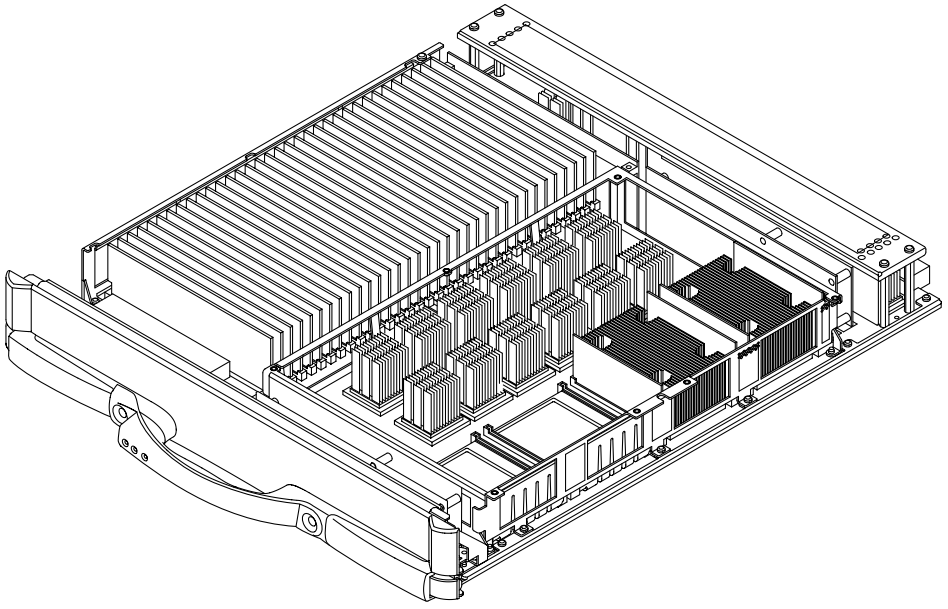

FIGURE A-6 CPU/Memory Board With the Cover Removed

TABLE A-3 shows the CPU/Memory board slot locations.

TABLE A-3 CPU/Memory Board Slot Locations

System	Number of CPU/Memory Board Slots	Slot Numbers	Location
Sun Fire 6800 system	6	SB0–SB5	Front
Sun Fire 4810 system	3	SB0, SB2, SB4	Front
Sun Fire 4800 system	3	SB0, SB2, SB4	Rear
Sun Fire 3800 system	2	SB0, SB2	Front

Note – Board slot numbers are marked on the chassis.

A.5.1 CPU Processors

Each CPU/Memory board has four CPU processors. If you do not have all four CPU processors installed, you must install a CPU processor filler panel to cover the unused CPU processor land area. This special filler panel prevents overheating of the installed CPU processors by creating an air baffle.

A.5.2 Ecache Modules

Each CPU processor is flanked by two Ecache modules, totaling eight Ecache modules per CPU/Memory board. Two Ecache modules and the CPU processor are installed at the same time.

A.5.3 DIMMs

The CPU/Memory board has 32 DIMM (dual inline memory module) slots, organized as eight banks of four DIMMs per bank. You must install DIMMs in full banks. There are eight DIMMs (two banks of DIMMs) per corresponding CPU processor.

A.6 I/O Assemblies

Two types of I/O assemblies are available: the PCI I/O assembly and the CompactPCI I/O assembly. The Sun Fire 3800 system supports only the CompactPCI I/O assembly, which is a unique CompactPCI I/O assembly for the Sun Fire 3800 system. TABLE A-4 shows the I/O assembly slot locations for all systems.

TABLE A-4 I/O Assembly Slot Locations

System	Slot Numbers	Slot Location
Sun Fire 6800 system	IB6, IB7, IB8, and IB9	Rear
Sun Fire 4810 system	IB6, IB8	Front
Sun Fire 4800 system	IB6, IB8	Rear
Sun Fire 3800 system	IB6, IB8	Front

When you remove the I/O assembly to install components on it, you must install an I/O assembly filler panel, which covers the board slot and prevents the system from overheating. The card slots in the I/O assembly must have either a card or a filler board installed in them.

When you install an I/O assembly into the system, you must install the PCI I/O assembly in the bottom slots and the CompactPCI I/O assembly in the top slots for cooling purposes. The Sun Fire 3800 system supports only the CompactPCI I/O assembly. For the Sun Fire 3800 system, it is suggested that you populate the left I/O slot, IB6, first and the right I/O slot, IB8, last.

A.6.1 PCI I/O Assembly

The PCI I/O assembly has eight slots. Six slots accommodate full-length PCI I/O cards. Two slots accommodate short PCI cards. You can install short PCI I/O cards in any of the full-length PCI I/O slots as well. The PCI I/O cards in all systems in slots 0, 1, 2, 4, 5, and 6 operate at 33 MHz, 64-bit, and 5V I/O. The PCI cards in slots 3 and 7 operate at 66 MHz, 64-bit, and 3.3V I/O.

FIGURE A-7 shows the PCI I/O assembly.

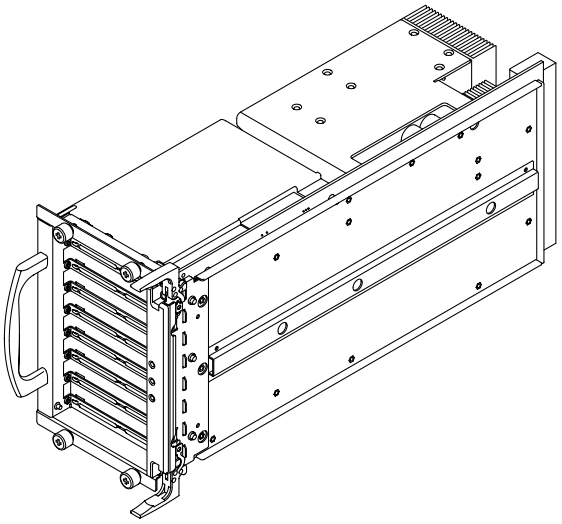

FIGURE A-7 PCI I/O Assembly

FIGURE A-8 shows a PCI card.

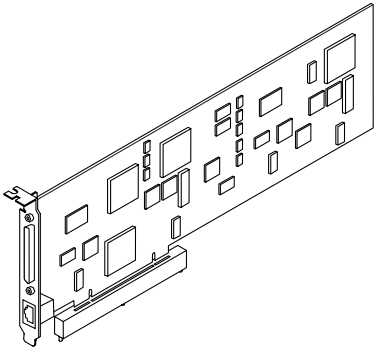

FIGURE A-8 PCI Card

A.6.2 Compact PCI I/O Assembly

The CompactPCI I/O assembly for the Sun Fire 3800 system supports six CompactPCI I/O cards (FIGURE A-9).

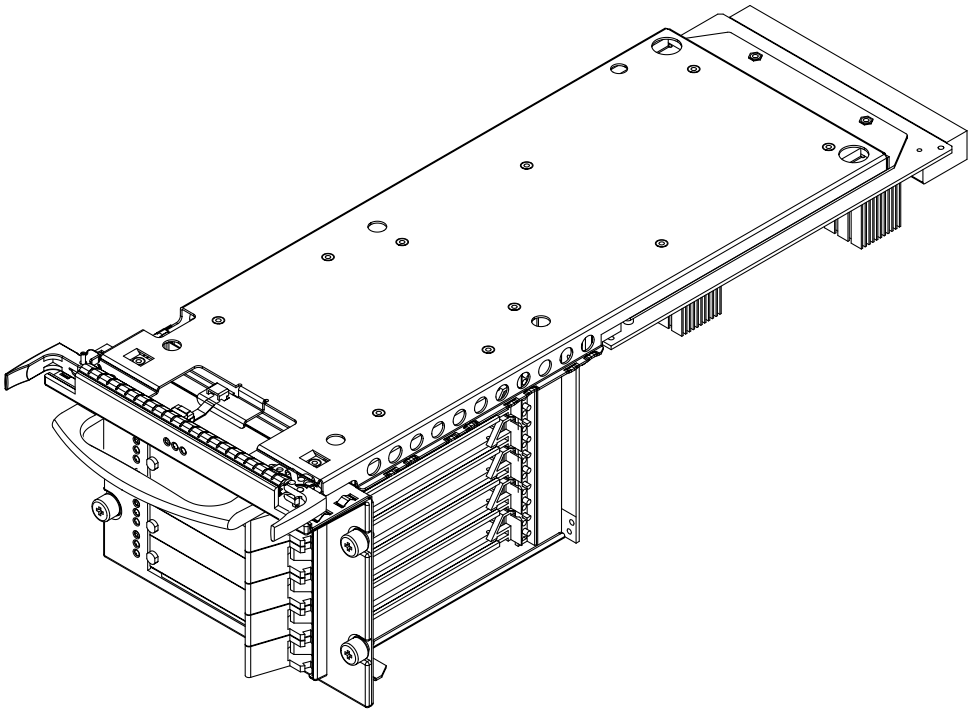

FIGURE A-9 CompactPCI I/O Assembly—Sun Fire 3800 System

TABLE A-5 describes the I/O assemblies.

TABLE A-5 I/O Assemblies

I/O Assembly	Description
PCI I/O Assembly	8 PCI slots. The PCI I/O assembly has 6 slots for full-length PCI I/O cards and 2 short slots for short PCI I/O cards. You can install short PCI cards in any of the 6 full-length slots as well. Peak I/O throughput for the full-length PCI I/O slots (0, 1, 2, 4, 5, and 6) is 33 MHz, 64-bit and 5V I/O. Peak I/O throughput for the short PCI I/O slots (3 and 7) is 66/33 MHz, 64-bit, and 3.3V I/O.

TABLE A-5 I/O Assemblies *(Continued)*

I/O Assembly	Description
	Peak I/O is affected by operating frequency. Total peak I/O throughput per PCI board is 965 Mbytes/second.
CompactPCI I/O Assembly (Sun Fire 3800 system)	6 hot-swappable CompactPCI slots.
	Peak I/O throughput for the cards in slots 0 and 1 is 66/33 MHz, 64-bit, and 3.3V I/O. Peak I/O throughput for the cards in slots 2 through 5 is 33 MHz, 64-bit, and 5V I/O.

A.6.3 Network Interfaces

You must install network I/O cards in the I/O assemblies for external network connections.

A.7 Power Supplies

There are three styles of power supplies. The Sun Fire 6800 and Sun Fire 4810 systems have one style of power supply. The Sun Fire 4800 system has the second style of power supply. The Sun Fire 3800 system has a third style of power supply. All three styles are hot-pluggable and, depending on the configuration, are redundant power supplies.

The power supplies provide 56 VDC to all system boards, except the system controller. The power supplies provide 55 VDC to the system controller, and 56 VDC is distributed to the fan trays. Current sharing between power supplies provides redundant power.

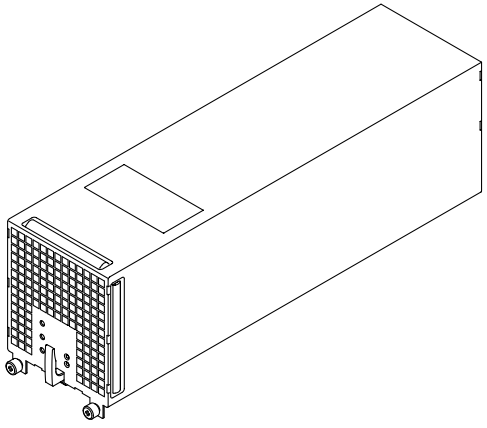

FIGURE A-10 Sun Fire 6800 and Sun Fire 4810 Systems Power Supply

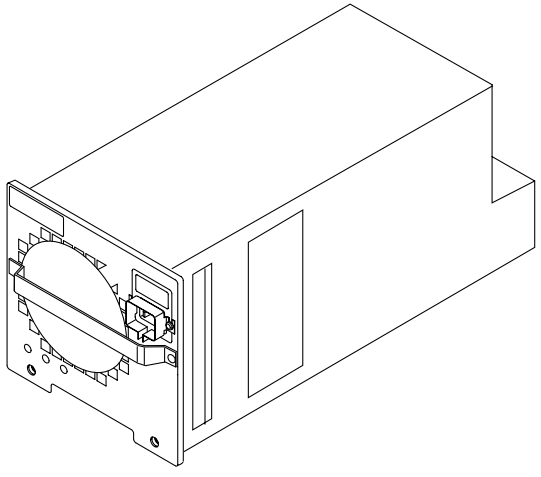

FIGURE A-11 Sun Fire 3800 System Power Supply

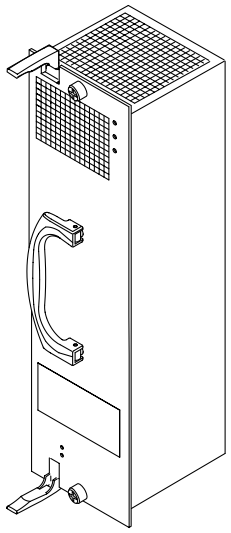

FIGURE A-12 Sun Fire 4800 System Power Supply

A.8 Fan Trays

All systems have fan trays that cool all components in the system. TABLE A-6 lists the number of fan trays in the systems.

TABLE A-6 Number of Fan Trays, CPU Fan Trays, and Blower Assemblies

System Type	Total Number of Fan Trays and Blower Assemblies
Sun Fire 6800 system	4 fan trays
Sun Fire 4810 system	3 fan trays
Sun Fire 4800 system	3 fan trays
Sun Fire 3800 system	4 blower assemblies

The Sun Fire 4800 system has three fan trays: a CPU fan tray, an I/O fan tray (which cools all components in the system except for the CPU) and a third redundant fan tray (which provides cooling if either the CPU fan tray or I/O fan tray fails.)

The Sun Fire 3800 system has four blower assemblies in the rear of the system that provide front-to-back cooling. Three of the four blower assemblies in the Sun Fire 3800 system are needed to cool everything in the system except for the power supplies, which have their own fans. The fourth blower assembly in the Sun Fire 3800 system is for redundancy, in case one of the blower assemblies is defective.

A.9 System Controller Board

The System Controller board contains the system clock and a system controller. One System Controller board is required per system. One additional System Controller board can be installed for redundancy in all systems.

The System Controller board has the following features:

- Redundant System Controller board
- Virtual domain keyswitches
- Network Solaris console for each domain
- Virtual time-of-day for each domain
- Environmental monitoring

FIGURE A-13 illustrates the System Controller board for the Sun Fire 6800/4810/4800 systems. FIGURE A-14 illustrates the System Controller board for the Sun Fire 3800 system.

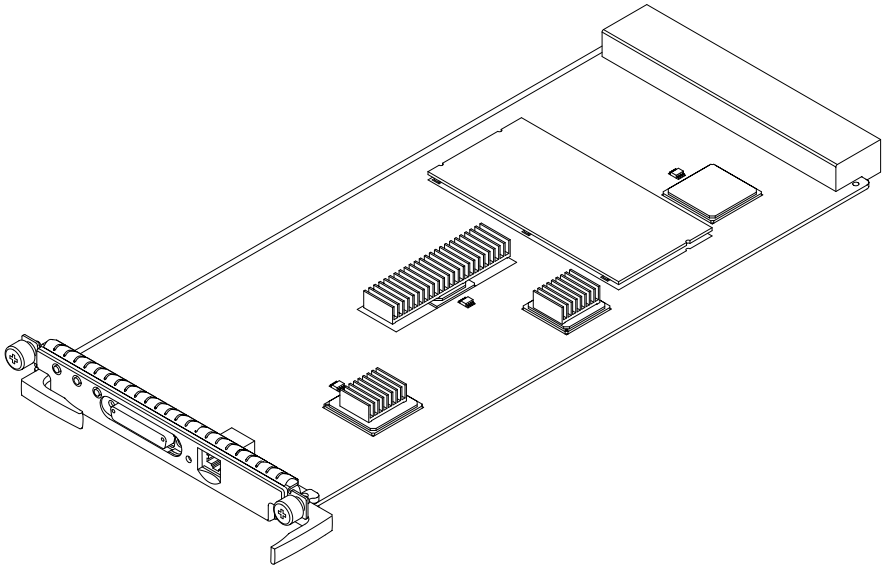

FIGURE A-13 System Controller Board—Sun Fire 6800/4810/4800 Systems

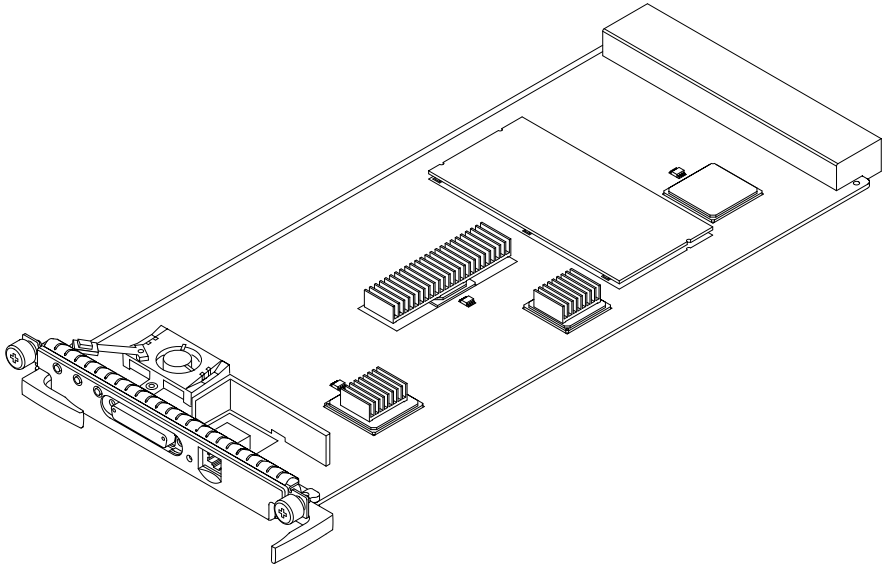

FIGURE A-14 System Controller Board—Sun Fire 3800 System

APPENDIX **B**

System Serial Number Locations and Rules for System Configuration

Some of the following rules are suggestions for optimizing your system. Other rules are strictly required and are marked with the notation “Requirement” or “Maximum.”

B.1 System Serial Number Locations

Your system serial number is needed whenever you make a service call.

B.1.1 Location for the Sun Fire 6800 System

The serial number location is in the rear of the system, to the left of the patch panel. See FIGURE B-1.

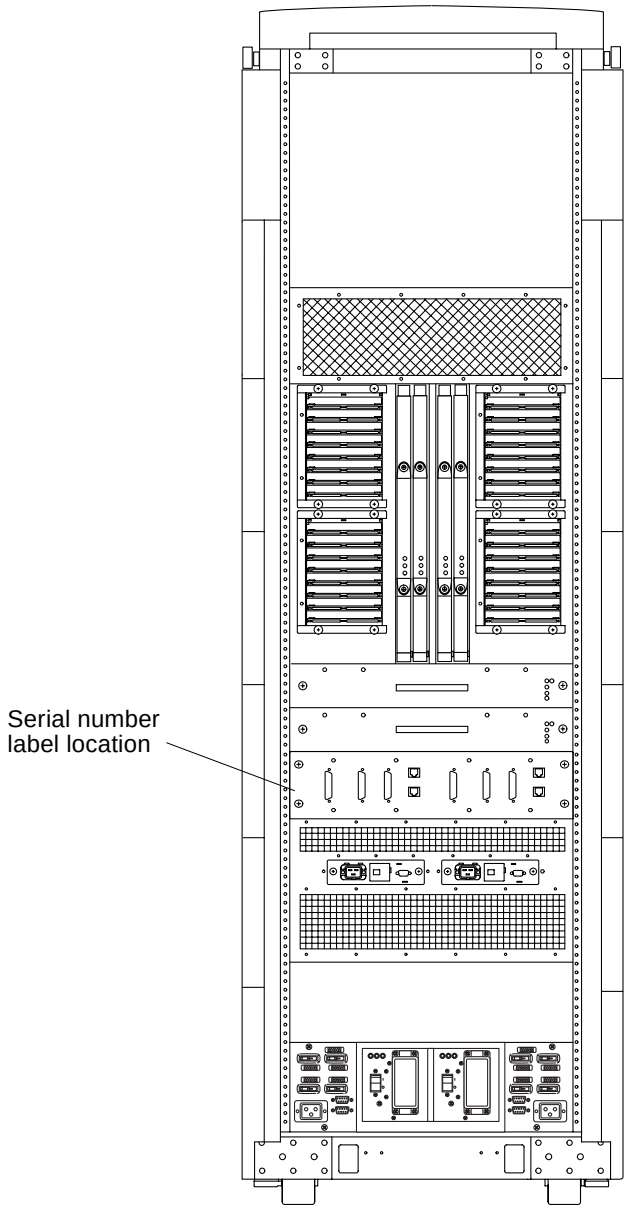

FIGURE B-1 Sun Fire 6800 System Serial Number Location

B.1.2 Location for the Sun Fire 4810 System

The serial number location is in the front of the system, on top of the chassis, to the right.

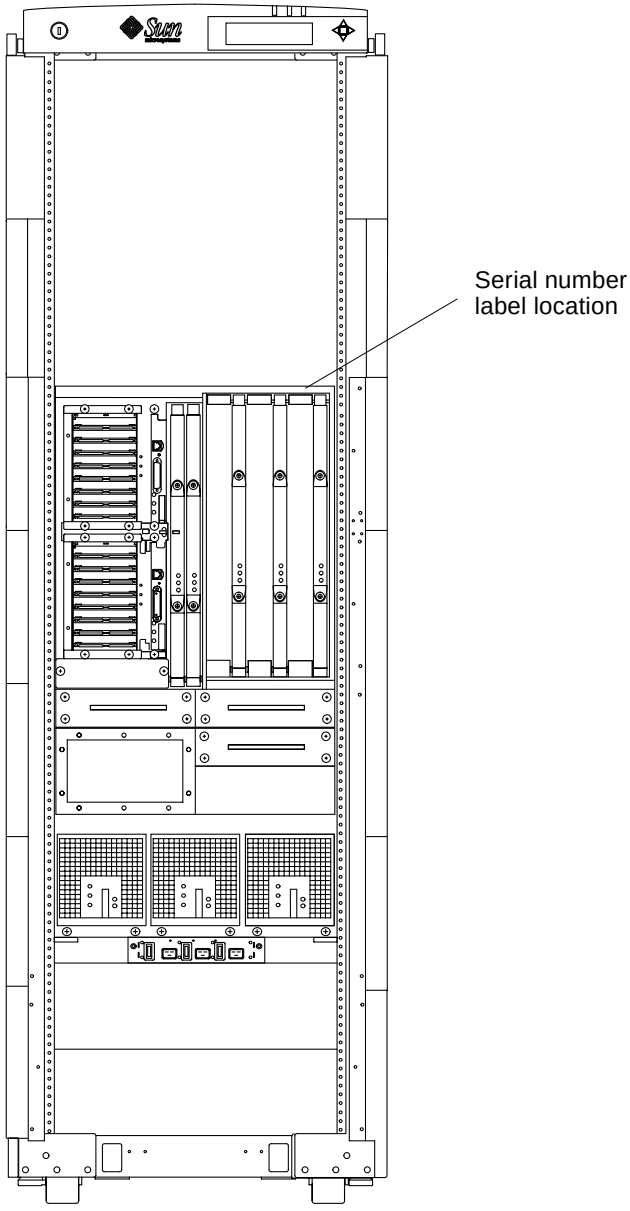

FIGURE B-2 Sun Fire 4810 System Serial Number Location

B.1.3 Location for the Sun Fire 4800 System

The serial number location is in the rear of the system, to the right of the repeater boards near the bottom.

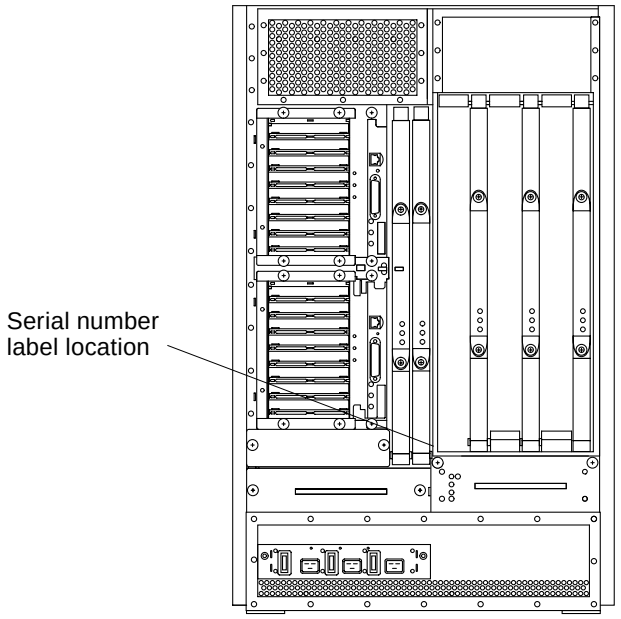

FIGURE B-3 Sun Fire 4800 System Serial Number Location

B.1.4 Location for the Sun Fire 3800 System

The serial number location is in the rear of the system, to the right of the FT0 and FT2 label.

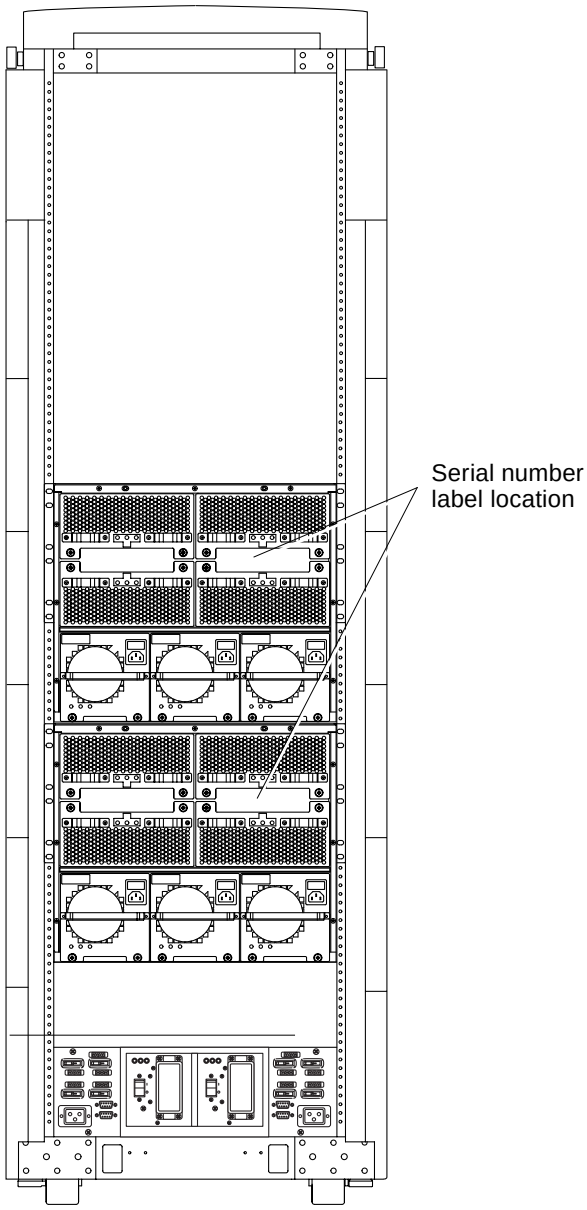

FIGURE B-4 Sun Fire 3800 System Serial Number Location

B.2 Boards and Assemblies

B.2.1 CPU/Memory Boards

1. **Requirement—**Install CPU/Memory boards in their designated slots:
   - Slots SB0–SB5 for the Sun Fire 6800 system
   - Slots SB0, SB2, and SB4 in the Sun Fire 4810/4800 systems
   - Slots SB0 and SB2 for the Sun Fire 3800 system
2. **Requirement—**For the Sun Fire 6800 system, the CPU/Memory boards are populated from left to right, beginning with SB0 and ending with SB5. For the Sun Fire 4810/4800 systems, the CPU/Memory boards are populated from left to right, beginning with SB0 and ending with SB2. For the Sun Fire 3800 system, the CPU/Memory boards are populated from top to bottom, beginning with SB2 and ending with SB0.
3. **Requirement—**For the Sun Fire 6800/4810/4800 systems, if you remove two CPU/Memory boards, you must install a filler board in one board slot and install a filler panel covering the second board slot within one minute of removing the boards to prevent overheating. You must not install two filler panels.

B.2.1.1 CPU Processors

1. **Requirement—**Each CPU/Memory board has four CPU connectors.
2. **Requirement—**Do not mix CPU processors of different speeds on one CPU/Memory board.
3. **Requirement—**If you have two CPU processors on the CPU/Memory board, install CPU processor filler panels to cover the CPU processor land area. The CPU processor filler panels protect the area and provide an air baffle. Snap the CPU processor filler panels into position.

B.2.1.2 Memory Modules

1. **Requirement—**Use the DIMM part number assigned to these systems. Do not use other types of memory modules.
2. **Requirement—**All DIMMs in a bank must have the same capacity and the same speed rating.

3. **Requirement—**Insert DIMMs in a bank across from the controlling CPU processor.

B.2.2 I/O Assemblies

1. **Requirement—**Install I/O assemblies in their designated slots:
   - Slots IB6 – IB9 in the Sun Fire 6800 system
   - Slots IB6 and IB8 in the Sun Fire 4810/4800/3800 systems
2. **Requirement—**Populate the I/O assemblies from right to left. That is, populate I/O locations IB6 and IB8 before you populate the left I/O locations, IB7 and IB9.
3. **Requirement—**Install in either the top or bottom I/O locations, IB6 or IB8 for the Sun Fire 4810/4800 systems.
4. **Requirement—**The Sun Fire 3800 system supports only the CompactPCI I/O assembly. There are no cooling rules for this system. However, you must populate the right I/O location, IB8, first and the left I/O location, IB6, last.
5. **Requirement—**Install a filler panel to cover the slot before powering on, when you remove the I/O assembly, if you are not replacing the I/O assembly .

B.2.2.1 PCI Cards

1. **Requirement—**Install full-length PCI cards in the six full-length PCI card slots.
2. **Requirement—**Install short PCI cards in the two short PCI card slots. Additionally, you can install short PCI cards in any of the six full-length PCI card slots.
3. **Requirement—**Install PCI filler cards in all empty PCI slots.

B.2.2.2 CompactPCI Cards

The Sun Fire 3800 system supports up to six CompactPCI cards.

1. **Requirement—**Install CompactPCI filler cards in all empty CompactPCI slots.

B.2.3 Repeater Boards

1. **Requirement—**Install the Repeater boards in their designated slots:
   - Slots RP0–RP3 in the Sun Fire 6800 system

- Slots RP0 and RP2 in the Sun Fire 4810 and Sun Fire 4800 system

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Note – The equivalent of two Repeater boards are integrated into the centerplane of the Sun Fire 3800 system.

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2. **Requirement—**In the Sun Fire 6800 system, Repeater boards work in pairs, pair RP0 and RP1 and pair RP2 and RP3. A minimum of four Repeater boards must be installed. For the Sun Fire 4810/4800 systems, Repeater boards work individually, but must be installed in pairs.
3. **Requirement—**For the Sun Fire 4810/4800 systems, install a minimum of two Repeater boards, RP0 and RP2.

B.2.4 System Controller Board

1. **Requirement—**You must have at least one System Controller board in the system.
2. **Requirement—**Install the System Controller boards in their designated slots: SSC0 (lower slot for the master System Controller board) and SSC1 (upper slot for the redundant System Controller board). The second System Controller board is a redundant System Controller board that will take over if the primary System Controller board fails.

B.3 Filler Boards and Filler Panels

For a description of the functionality of filler boards and filler panels, see Section 1.4 “Filler Boards and Filler Panels” on page 1-4. TABLE B-1 describes the rules you must follow when you hot-plug boards or devices, using filler boards and filler panels.

TABLE B-1 Overheating Precautions Using Filler Panels and Filler Boards

If you have	Do the following
I/O assembly	Install a filler panel when removing the assembly from a system, in order to prevent the system from overheating.
Empty PCI card slots	Install PCI filler boards in all empty PCI card slots.
Empty CompactPCI slots	Install CompactPCI filler boards in all empty CompactPCI card slots.

TABLE B-1 Overheating Precautions Using Filler Panels and Filler Boards *(Continued)*

If you have	Do the following
CPU / Memory board	If the system is to be operating without the CPU / Memory board installed, install a filler board in a system in order to prevent the system from overheating,. If two CPU / Memory boards must be removed, do not install two filler panels. Use a CPU filler panel over one board slot and a filler board in the second board slot to prevent the system from overheating.
System Controller board	A filler panel covers the empty slot for one of the System Controller boards. If you install a redundant System Controller board, remove the System Controller filler panel.
All other system boards	Replace boards in order to prevent the system from overheating.
All other system boards	Install a filler board for EMI protection and for cooling purposes.
Empty power supply slots	Install power supply filler boards in empty power supply slots in order to prevent overheating.
Fan trays	Replace fan trays or install a filler panel, if removing the fan tray from a system, to avoid overheating the system.

B.4 Fan Trays

1. **Requirement —**You must replace a defective fan tray assembly in order to prevent the system from overheating.
2. **Requirement —**The Sun Fire 6800 system needs a minimum of one fan tray in the front (FT1) and two fan trays in the rear (FT0 and FT2). The bottom CPU fan tray (FT3) is redundant and can be removed.
3. **Requirement —**The Sun Fire 4810 system needs two of the three fan trays to cool the system. The third fan tray (lower CPU fan tray, FT1) is redundant. You can remove the bottom right fan tray on the CPU side of the system, FT1. The system cools with the remaining two fan trays, FT0 and FT2, one pushing and one pulling.
4. **Requirement —**The Sun Fire 4800 system needs two of the three fan trays to collectively cool the system, FT1 and FT2. The third fan tray, FT0, is redundant.
5. **Requirement —**The Sun Fire 3800 system has slots for up to four fan trays, FT0–FT3. The upper left fan tray, FT0, is a redundant fan tray. The default configuration for this slot is a fan tray filler panel. For redundancy, you can install a fan tray in the FT0 slot.

B.5 Power Supplies

The power supplies provide 56 VDC to all system boards, except for other system controllers, where local DC to DC converters generate the required voltages for each system board. For the Sun Fire 6800/4810/4800 systems, the power supplies provide 50 VDC to the system controller. For the Sun Fire 3800 system, the power supplies provide 55 VDC to the system controller. Fifty-six VDC is distributed to the fan trays in the chassis.

1. **Requirement—**You must install power supply filler boards in all empty power supply slots for all systems.
2. **Requirement—**For the Sun Fire 6800 system, you must have a minimum of two power supplies for each disk partition. If you have two partitions, you must have a minimum of four power supplies installed, two per disk partition.
3. **Requirement—**The Sun Fire 6800 system has two power grids, grid 0 and grid 1. For the Sun Fire 6800 system, power supplies ps0, ps1, and ps2 are assigned to power grid 0, and power supplies ps3, ps4, and ps5 are assigned to power grid 1.
4. **Requirement—**For the Sun Fire 4810 and Sun Fire 4800 systems, install the right and left power supplies before installing the middle power supply. Install the power supplies in this order: PS0, PS2, and PS1.
5. **Requirement—**For the Sun Fire 3800 system, install the middle power supply first. Then install the left power supply. Finally, install the right power supply. Install the power supplies in this order: PS1, PS2, and PS0.

B.6 Connecting Cables

B.6.1 Ethernet

The only Ethernet port is on the System Controller board. The Ethernet connector (RJ-45) allows access to the chassis port and the domain break shell with 10/100 mbs Ethernet. To provide the system with external Ethernet connections, you must install a network I/O card in an I/O assembly.

B.6.2 Serial Port

1. **Requirement—**The only serial port is on the System Controller board. The serial port connector (DB-25) allows console access from a terminal or modem. If you attach a Y serial cable to the System Controller board serial port, you will have TTYA and TTYB connections.

2. **Requirement—**To provide the system with serial ports, you must install the appropriate I/O card in the I/O assembly.

APPENDIX **C**

Illustrated Parts Breakdown

This appendix lists and illustrates the replacement parts (field-replaceable units or FRUs) covered in this book.

C.1 Finding Part Numbers

Note – Part numbers in this section may differ from those found in your system. Before ordering replacement parts, find the label on the part to be replaced and place your order using that number. When ordering an entire assembly, be sure to use the assembly part number, not the individual component part numbers.

C.2 List of Replacement Parts

The following sections list the part numbers of the replacement parts for all systems, their part numbers, and illustrations.

C.2.1 Sun Fire 6800 System Replacement Parts

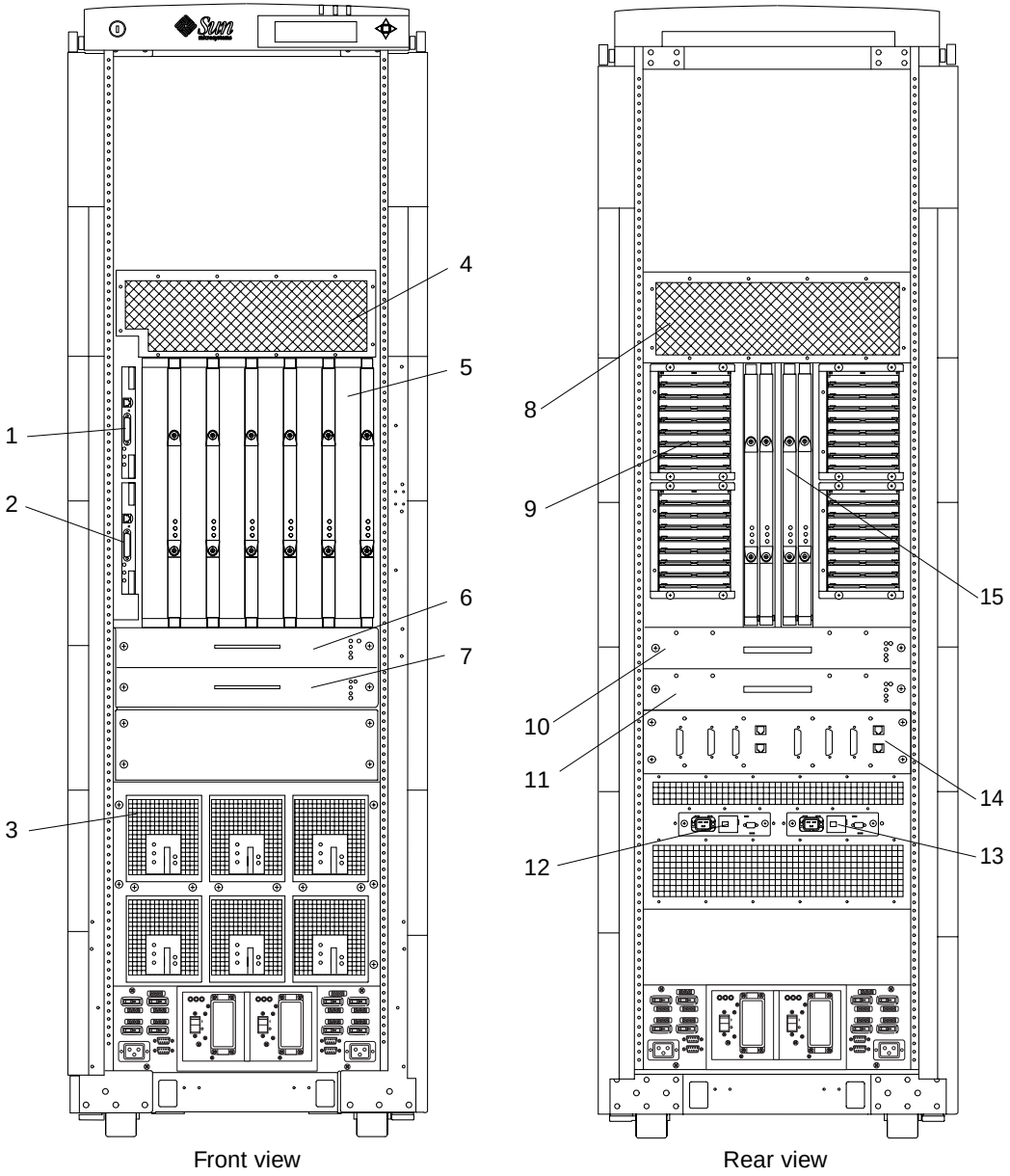

FIGURE C-1 Sun Fire 6800 System—Front and Rear Views

Key	Description	Part Number
1	Redundant System Controller board, SSC1	F501-5407
2	Master System Controller board, SSC0	F501-5407
3	Power supplies (up to 6), PS0 - PS5	F300-1459
4	Air inlet cover	F240-3530
5	CPU/Memory boards w/ 2 CPUs, 750 MHz, 0MB memory, SB0–SB5 CPU/Memory boards w/ 4 CPUs, 750 MHz, 0MB memory, SB0–SB5	F540-4729 F540-4730
6	Fan tray, FT1	F540-3632
7	Fan tray, FT3	F540-3632
8	Air outlet cover	F240-3531
9	PCI I/O assemblies (up to 4), IB6–IB9	F501-4404
10	Fan tray, FT0	F540-3631
11	Fan tray, FT2	F540-3631
12	AC input box, AC0	F540-3588
13	Repeater boards (up to 4), RP0–RP3	F501-4953
14	Patch panel	F540-3996
15	AC input box, AC1	F540-3588
	System centerplane	F501-5879
	Power centerplane	F501-5005
	Fan centerplane	F501-5006
	ID source board	F501-5880
	Cable, system centerplane power	F530-2545
	Cable, fan tray centerplane power	F530-2546
	Cable, AC input tray	F530-2560
	Cable, peripherals	F530-2563
	Cable, RJ-45 shielded Ethernet	F530-2573

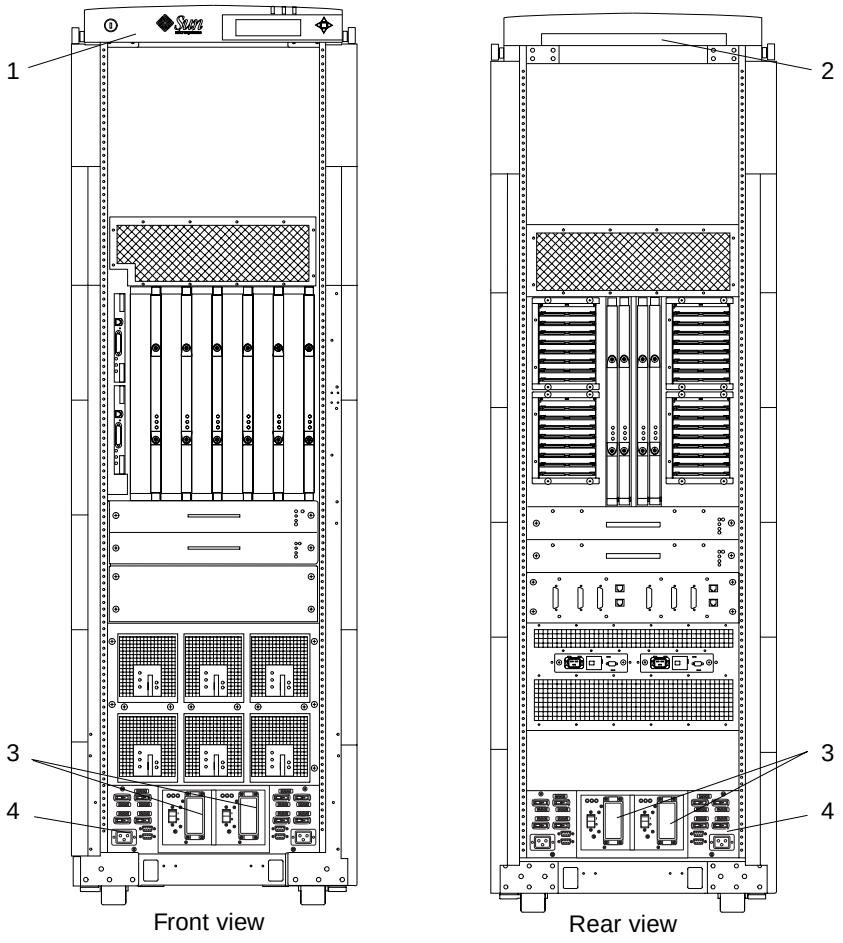

FIGURE C-2 Sun Fire 6800 System Cabinet

Key	Description	Part Number
1	FrameManager	F540-3883
2	Fan trays	F540-3662
3	RTS Module	F300-1396
4	RTU Assembly	F300-1335

C.2.2 Sun Fire 4810 System Replacement Parts

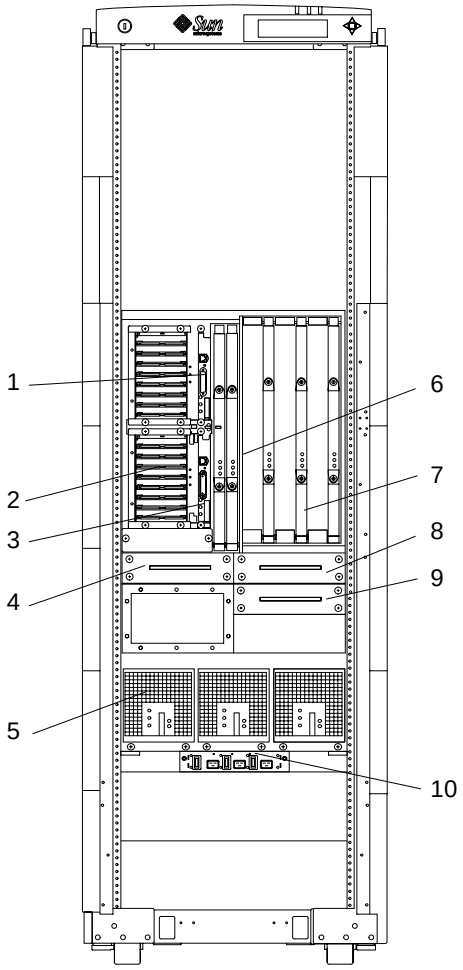

FIGURE C-3 Sun Fire 4810 System Mounted in Optional Sun Fire Cabinet—Front View

Key	Description	Part Number
1	Redundant System Controller board, SSC1	F501-5407
2	I/O assemblies (up to 2), IB6, IB8, PCI	F540-4404
3	Master System Controller board, SSC0	F501-5407
4	Fan tray, FT0	F540-3639

Key	Description	Part Number
5	Power supplies (up to 3), PS0–PS2	F300-1459
6	Repeater boards (up to 2), RP0, RP2	F501-4953
7	CPU/Memory boards w/ 2 CPUs, 750 MHz, 0MB memory, SB0, SB2, SB4 CPU/Memory boards w/ 4 CPUs, 750 MHz, 0MB memory, SB0, SB2, SB4	F540-4729 F540-4730
8	Fan tray, FT2	F540-3639
9	Fan tray, FT1	F540-3639
10	AC input box	F540-4346
	Air inlet cover	F240-3534
	Air outlet cover	F240-3535
	System centerplane	F501-5878
	Power centerplane	F501-5029
	ID source board	F501-5880
	Cable, system centerplane power	F530-2543

C.2.3 Sun Fire 4800 System Replacement Parts

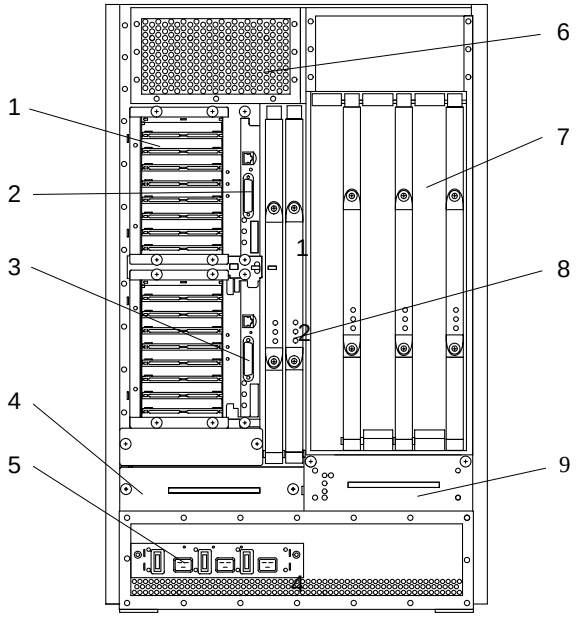

FIGURE C-4 Sun Fire 4800 System—Rear View

Key	Description	Part Number
1	I/O assemblies (up to 2), IB6, IB8, PCI	F540-4404
2	Redundant System Controller board, SSC1	F501-4502
3	Master System Controller board, SSC0	F501-4502
4	Fan tray, FT0	F540-4345
5	AC input box, AC	F540-4346
6	Air outlet cover	F540-4636
7	CPU/Memory boards w/ 2 CPUs, 750 MHz, 0MB memory, SB0, SB2, SB4 CPU/Memory boards w/ 4 CPUs, 750 MHz, 0MB memory, SB0, SB2, SB4	F540-4729 F540-4730
8	Repeater boards (up to 2), RP0, RP2	F501-4953
9	Fan tray, FT2	F540-3586

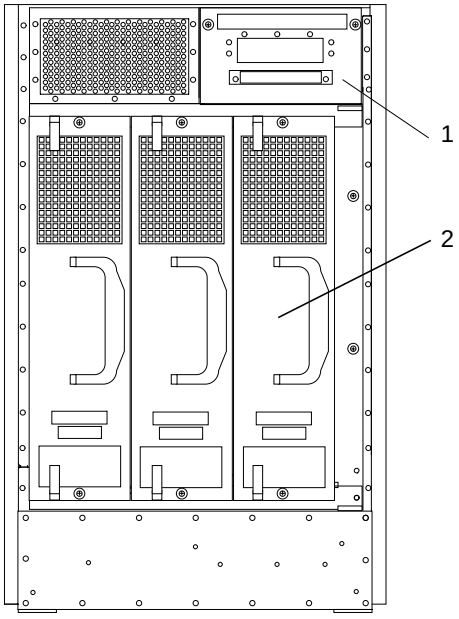

FIGURE C-5 Sun Fire 4800 System—Front View

Key	Description	Part Number
1	Fan tray, FT1	F540-4344
2	Power supplies (up to 3), PS0–PS2	F300-1460
	Centerplane	F501-5877
	ID source board	F501-5880
	Cable, system centerplane power	F530-2886
	Cable, fan, and I/O centerplane	F530-2887

C.2.4 Sun Fire 3800 System Replacement Parts

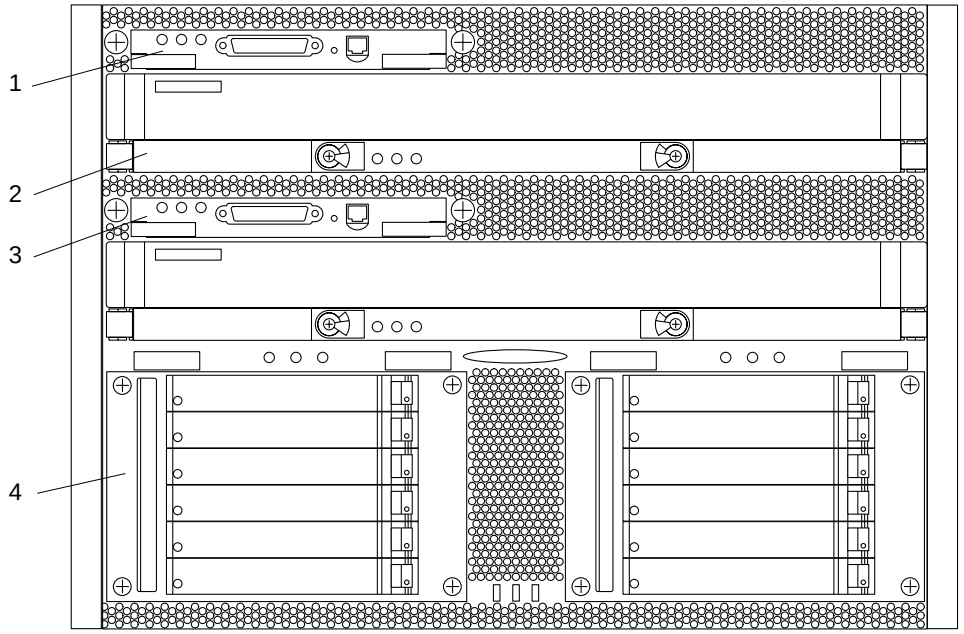

FIGURE C-6 Sun Fire 3800 System—Front View

Key	Description	Part Number
1	Redundant System Controller board, SSC1	F501-5563
2	CPU/Memory boards w /2 CPUs, 750 MHz, 0MB memory, SB0, SB2 CPU/Memory boards w/ 4 CPUs, 750 MHz, 0MB memory, SB0, SB2	F540-4729 F540-4730
3	Master System Controller board, SSC0	F501-5563
4	Compact PCI I/O assemblies (up to 2), IB6, IB8	F501-5531
	Centerplane	F501-5876
	ID source board	F501-5880

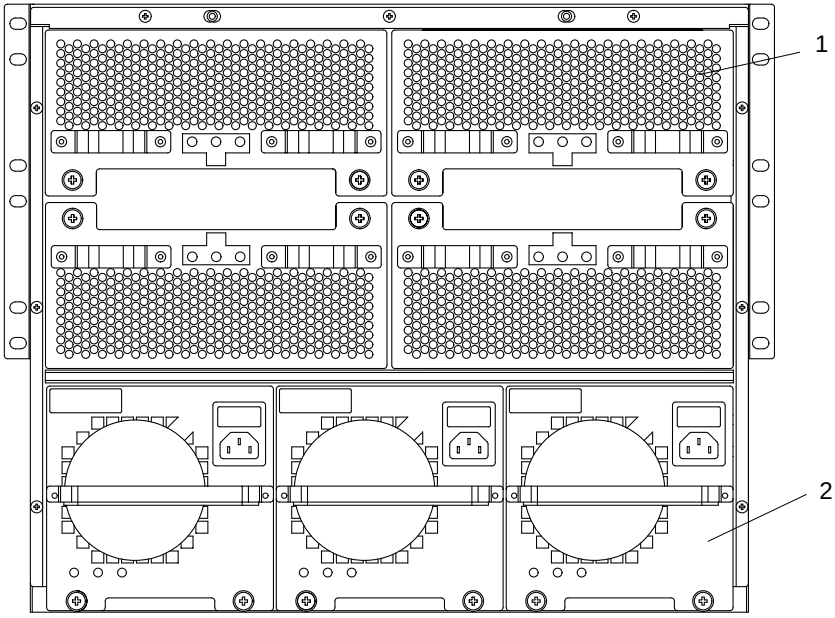

FIGURE C-7 Sun Fire 3800 System—Rear View

Key	Description	Part Number
1	Fan trays (up to 4), FT0–FT3	F540-4193
2	Power supplies (up to 3), PS0–PS2	F300-1441

C.2.5 CPU/Memory Board Replacement Parts

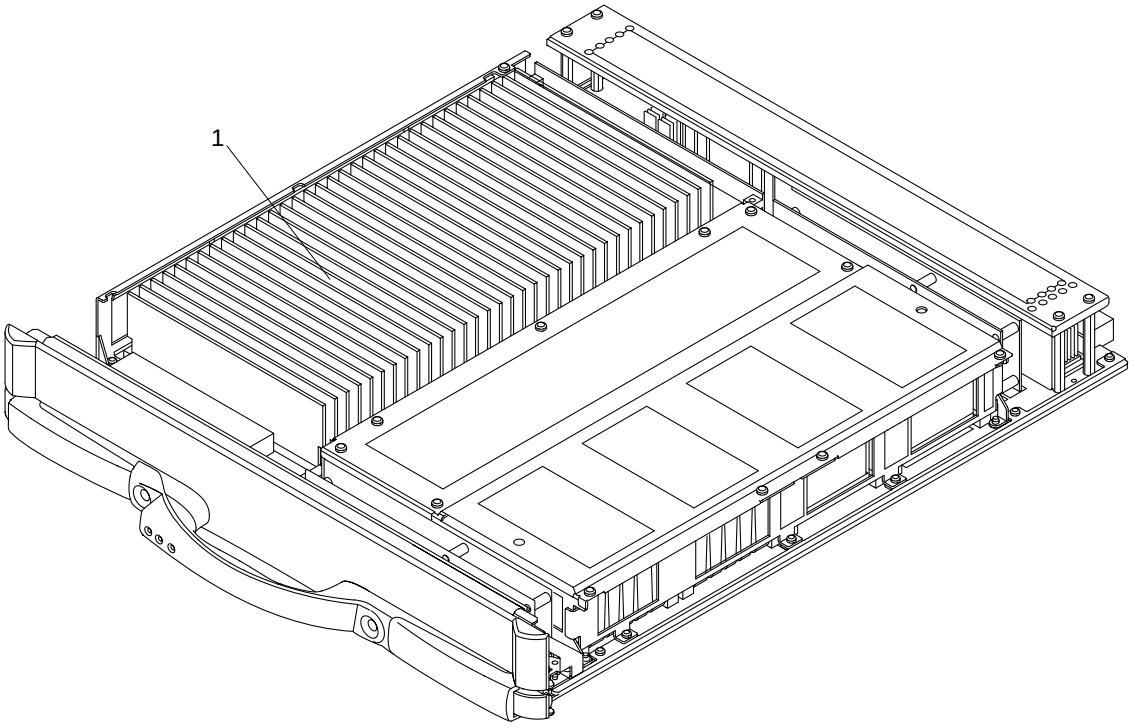

FIGURE C-8 CPU/Memory Board

Key	Description
1	DIMMs

Description	Part Number
DIMM (256 Mbyte)	F501-5401
DIMM (512 Mbyte)	F501-5030
DIMM (1Gbyte)	F501-5031

C.2.6 I/O Assembly Replacement Parts

There are two styles of I/O assemblies: PCI and CompactPCI. The Sun Fire 3800 system has only the CompactPCI style of I/O assembly.

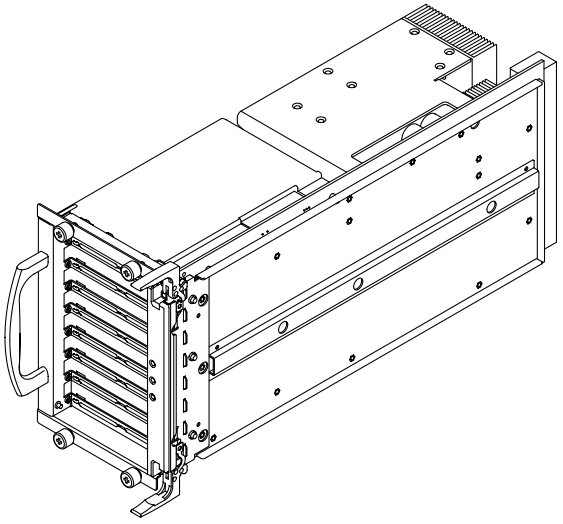

FIGURE C-9 PCI I/O Assembly

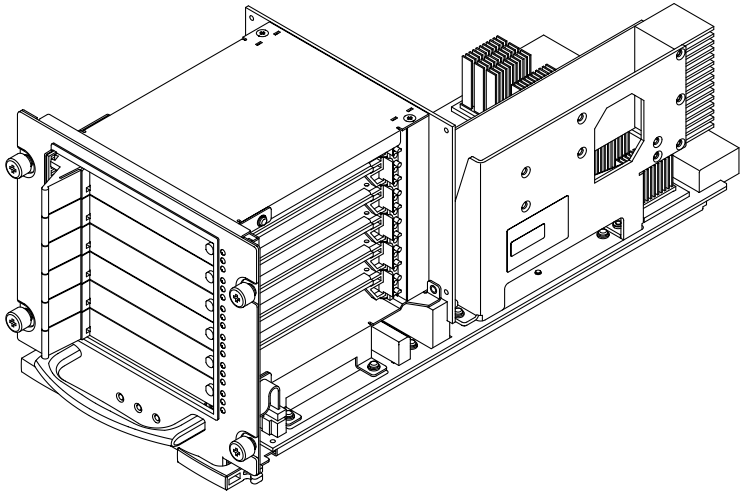

FIGURE C-10 CompactPCI I/O Assembly

Description	System	Part Number	Figure Reference
PCI I/O assembly	Sun Fire 6800/4810/4800 systems	F501-4404	FIGURE C-9 on page C-12
CompactPCI I/O assembly	Sun Fire 3800 system	F501-5531	FIGURE C-10 on page C-12

C.2.7 Repeater Board Replacement Part

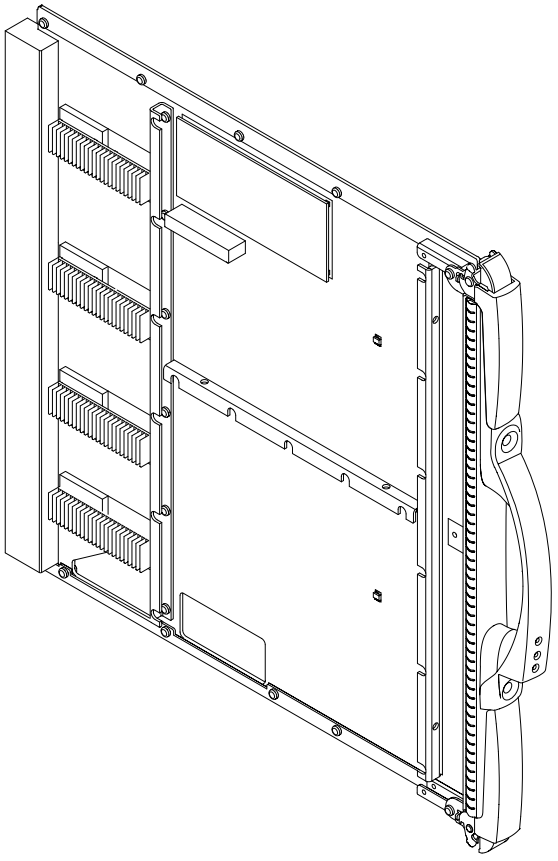

FIGURE C-11 Repeater Board

Description	System	Part Number
Repeater board	Sun Fire 6800/4810/4800 systems	F501-4953

C.2.8 System Controller Board

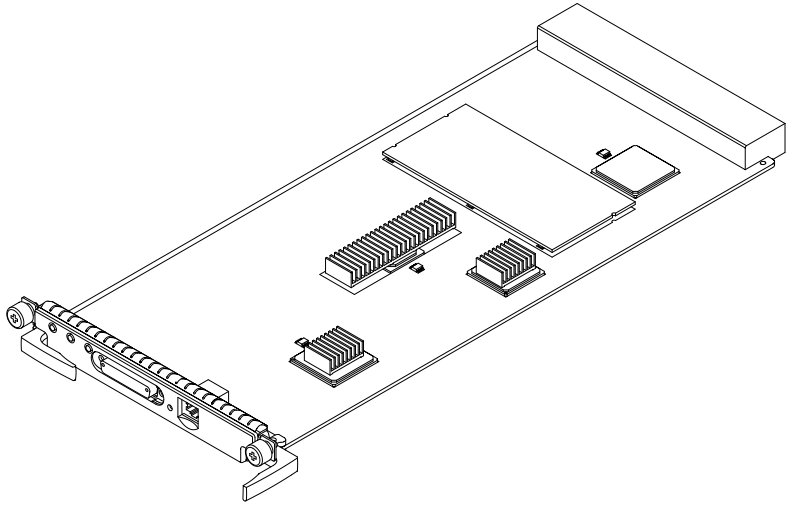

FIGURE C-12 System Controller Board—Sun Fire 6800/4810/4800 Systems

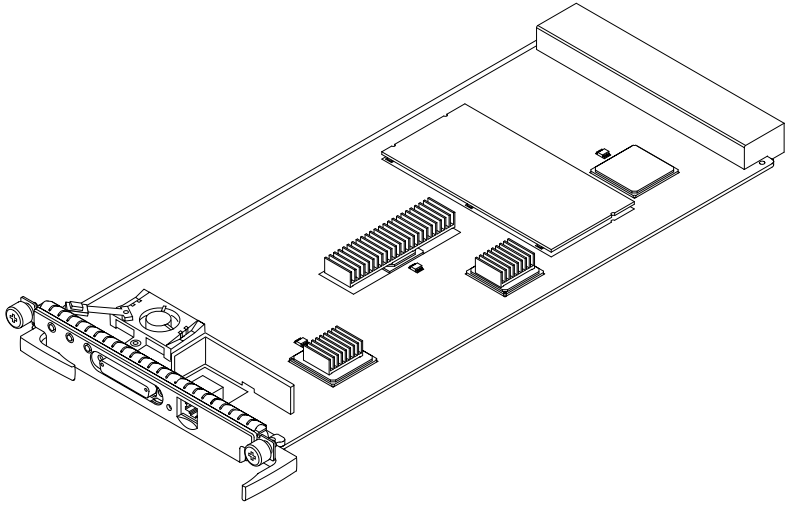

FIGURE C-13 System Controller Board—Sun Fire 3800 System

Description	System	Part Number	Figure Reference
System Controller board	Sun Fire 6800/4810/4800 systems	F501-5402	FIGURE C-12 on page C-15
System Controller board	Sun Fire 3800 system	F501-5563	FIGURE C-13 on page C-15

C.2.9 Power Supply Replacement Parts

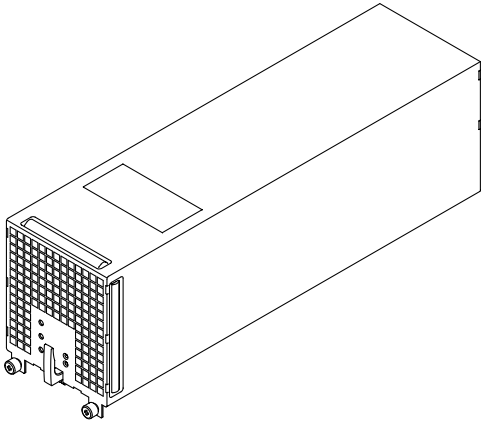

FIGURE C-14 Sun Fire 6800/4810 Systems Power Supply

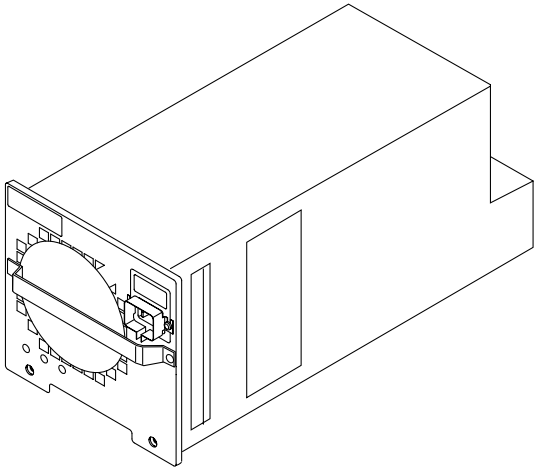

FIGURE C-15 Sun Fire 3800 System Power Supply

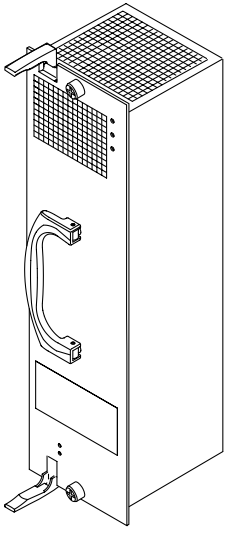

FIGURE C-16 Sun Fire 4800 System Power Supply

Description	System	Part Number	Figure Reference
Power supply	Sun Fire 6800/4810 systems	F300-1459	FIGURE C-14 on page C-16
Power supply	Sun Fire 3800 system	F300-1441	FIGURE C-15 on page C-17
Power supply	Sun Fire 4800 system	F300-1460	FIGURE C-16 on page C-17

C.2.10 Filler Boards and Filler Panels Replacement Parts

See the related chapters of this book for removal and installation instructions for the board or device.

Filler Board or Filler Panel	System	Part Number
CPU/Memory board filler board	All systems	F540-4040
CPU module filler panel	All systems	F330-2728
I/O assembly filler board	Sun Fire 6800/4810/4800 systems	F540-4402
I/O assembly filler board	Sun Fire 3800 system	F540-4446
I/O assembly filler panel	Sun Fire 6800/4810/4800 systems	F330-2822
I/O assembly filler panel	Sun Fire 3800 system	F330-3155
Short PCI card filler board	Sun Fire 6800/4810/4800 systems	F540-4045
Long PCI card filler board	Sun Fire 6800/4810/4800 systems	F540-4046
CompactPCI card filler card	Sun Fire 3800 system	F540-4446
CompactPCI card filler panel	Sun Fire 3800 system	F540-4242
Repeater board filler board	Sun Fire 6800/4810/4800 systems	F540-4042
Fan filler panel	Sun Fire 3800 system	F540-4347
Fan filler panel	Sun Fire 4800 system	F340-5912
Fan filler panel	Sun Fire 4810 system	F540-4200
Power supply filler panel	Sun Fire 6800/4810 systems	F540-4075
Power supply filler panel	Sun Fire 3800 system	F540-4246
Power supply filler panel	Sun Fire 4800 system	F340-4931

C.2.11 Cables Replacement Parts

Cable	System	Part Number	Page
Cable, universal power cord	Sun Fire 6800/4800 systems and Sun Fire cabinet	F180-1945	N/A
Cable, AC input power (North American, Asian)	Sun Fire 6800 system and Sun Fire cabinet	F180-1943	N/A
Cable, AC input power (international)	Sun Fire 6800 system and Sun Fire cabinet	F180-1944	N/A
Cable, AC power, 61 cm	Sun Fire 6800 system	F180-1946	N/A
Cable, AC power, 150 cm	Sun Fire 6800 system	F180-1947	N/A
Cable, AC power, 240V power to IEC	Sun Fire 4800 system	F530-1343	N/A
Cable, power, 230V 6 to 15 pin IEC	Sun Fire 4800 system	F530-1351	N/A
Cable, serial breakout 25M to 25F, 25F	Sun Fire 4810/4800/3800 systems	F530-1869	N/A
Cable, Fan Tray	Sun Fire 6800 system and Sun Fire cabinet	F530-2713	N/A
Cable, FrameManager	Sun Fire 6800 system and Sun Fire cabinet	F530-2720	N/A

Glossary

CPU	Central processing unit. An UltraSPARC III processor.
CPU/Memory board	The board containing up to four UltraSPARC III processors, eight Ecache modules, and four memory banks.
DIMM	Dual inline memory module. A small card with DRAM chips on its, used as main memory on the CPU/Memory board.
domain	A set of CPU/Memory boards and I/O assemblies that can freely communicate with each other. However, access to other boards is limited.
DRAM	Dynamic random access memory. The type of memory chip is used as main memory.
dual inline memory module	See DIMM.
Ecache module	External cache memory.
FRU	Field-replaceable unit or replacement part.
I/O assembly	The I/O assembly contains I/O cards such as network cards. There are two styles of I/O assemblies: PCI and CompactPCI. There are four I/O assemblies in the Sun Fire 6800 system and two I/O assemblies in the Sun Fire 4810/4800/3800 systems. The Sun Fire 3800 system, which has two I/O assemblies, supports only the CompactPCI I/O assembly.
memory module	See DIMM.
POST	Power-on self-test. This is the program that takes uninitialized system hardware and probes and tests its components, configures what seems worthwhile into a coherent initialized system, and hands it off to the OpenBoot™ PROM.

Repeater board This board acts as a switch and connects multiple CPU/Memory boards and I/O assemblies together. In the Sun Fire 4800 and Sun Fire 4810 systems, you need only one Repeater board. However, in the Sun Fire 6800 system, the Repeater boards work in pairs. In the Sun Fire 3800 system, the equivalent of two Repeater boards is integrated into the active centerplane.

Sun Fire 6800 system A 24 processor system installed in a cabinet.

Sun Fire 4810 system A 12 processor system.

Sun Fire 4800 system A 12 processor system.

Sun Fire 3800 system An 8 processor system.

SRAM Static random access memory. A type of high-speed memory device used for Ecache modules.

System Controller board A board containing a microSPARC™ processor, which oversees operation of the system and provides clocks and the console bus.

UltraSPARC III The processor used in all systems comprising this family of systems.

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